

Crime in Space and Time: A Spatial and Temporal Analysis of Burglary in Christchurch

A thesis
submitted in fulfilment
of the requirements for the
Degree
of
Master of Science in Geography
in the
University of Canterbury
by
Abby Maree Thornley

Department of Geography
University of Canterbury

2004

A geography of crime will retain strong descriptive role which depicts patterns in space, and here there is room to revise and improve ways in which the roles of space and place have been incorporated into criminological research (Herbert 1982:29)

Abstract

This thesis provides analyses on the spatial and temporal distribution of residential burglaries in Christchurch for the five-year period 1998/1999 to 2002/2003. The specific aspects of residential burglary that are explored are the geography of burglary and clear-up rates, the characteristics of burglars, the distance they travel and the characteristics of the burgled properties. It was important to research these aspects of residential burglaries in Christchurch as there has previously been minimal research conducted into burglaries in Christchurch. The research that has been conducted is almost ten years old and did not comprehensively cover all aspects of burglaries. This thesis provides up to date analysis of the current burglary problem in Christchurch.

The residential burglary data was provided by the Christchurch Branch of the New Zealand Police Department. This data included the addresses of both burglary victims and offenders and demographic characteristics of offenders. Information regarding the burglary event such as the items stolen and the time and date that the burglary occurred, was also supplied. This data allowed for analysis into many aspects of burglaries. In order to substantiate the conclusions formed there is comparison with the results of international and national studies into burglaries.

The key findings of this research were that Christchurch residential burglary rates decreased and were positively related to deprivation. The greatest percent of burglaries occurred during traditional work times, during the traditional workweek. Conversely, the clear-up rates increased and were inversely related to deprivation. The majority of offenders were unemployed European males, aged between 15 and 19 years of age. Generally, offenders travelled short distances to burgle, and the distance was found to be negatively correlated with the level of deprivation of the area in which the victim lived. There were also some interesting findings regarding the characteristics of the burgled and non-burgled properties and how they differed depending on whether the property was in a deprived or non-deprived area.

Acknowledgments

I would briefly like the opportunity here to thank the people that have been so supportive of me and generous with their time in assisting me in the writing of this thesis.

Thank-you to the Canterbury District Police for their help and for their generosity with their time and eagerness to help me find the burglary data, specifically Maggie Leask, Communications Manager, Canterbury District Police, Inspector Andy McGregor and Detective Sergeant Corrie Parnell.

I would especially like to thank my supervisors for their patience, assistance and support; Dr Jamie Pearce, Dr Ross Barnett, and Dr Nick Fyfe. I would also like to thank John Thyne for his help with the GIS analysis.

Thanks to my family who have also provided a great deal of love and support. I would especially like to thank Anne, Norm and Charlotte for being there when I needed them.

Table of Contents

Frontispiece.	ii
Abstract.	iii
Acknowledgements.	iv
Table of Contents.	v
List of Figures and Tables.	xi
List of Abbreviations	xxv
Chapter One: Introduction	1
1.1: Context	2
1.2: International Variation in Burglary Rates	3
1.3: Research Objectives	7
1.4: Structure of Thesis	7
Chapter Two: Changing Approaches and Methodologies in the Study of Burglary	10
2.1: Introduction	11
2.2: Positivist Approaches	11
2.2.1: Ecological Approaches	12
2.2.1.1: Anomie and Social Disorganisation Theory	13
2.2.1.2: Sub-Cultures Theory	13
2.2.2 Classical Approaches	14
2.2.2.1 Rational Choice Theory	15
2.2.2.2 Opportunity Theory	15
2.2.2.3: Routine Activities Theory	17

2.2.3 Evaluations of Positivist Approaches	19
2.3 Behaviouralist Approaches	20
2.3.1: Control Theory	21
2.3.2: Strain Theory	21
2.3.3: Inheritance Theory	22
2.3.4 Evaluations of Behaviouralist Approaches	22
2.4 Humanistic Approaches	23
2.4.1 Evaluations of Humanistic Approaches	24
2.5 Structuralist Approaches	25
2.5.1 Social Inequalities	25
2.5.2 Economic Inequality	26
2.5.3 Evaluations of Structuralist Approaches	28
2.6 Conclusions	28
 Chapter Three: Impacts of, and Responses to Residential Burglary	 29
3.1: Introduction	30
3.2: Individual and Community Responses	30
3.2.1: Fear of Burglary	30
3.2.2: Repeat Victimisation	32
3.2.3: Deterring Offenders and Preventing Burglaries	34
3.2.3.1: Target Hardening	34
3.2.3.2: CPTED (Crime Prevention through Environmental Design) and Defensible Space	36
3.2.3.3: Neighbourhood Characteristics	38
3.3: Structural Responses	39
3.3.1: Clear-Up Rates	39
3.3.2: International Policies	40
3.3.3: New Zealand Government Initiatives	43
3.3.4: New Zealand Policing Strategies	44

3.4: Conclusions	45
 Chapter Four: Methodology	 47
4.1: Introduction	48
4.2: Data Sources Used	48
4.2.1: Police Records	48
4.2.2: Evaluations of the Police Data	50
4.2.3: Socio-Demographic Data	51
4.3: Crime Reporting	52
4.4: Quantitative Approaches Used	54
4.4.1: Spatial and Temporal Analysis	54
4.4.2: Statistical Analysis	56
4.5: Qualitative Approaches Used	58
4.5.1: Survey of Burgled Properties	58
4.5.2: Interview with Burglary Squad	61
4.6: Conclusions	61
 Chapter Five: Ecological Analysis of the Spatial and Temporal Distribution of Residential Burglary and Clear-Up Rates	 62
5.1: Introduction	63
5.2: Burglary Rates	63
5.2.1: Spatial Distribution of Burglaries in Christchurch	63
5.2.2: Patterns of Change in Burglary	72
5.2.3: Burglary and Deprivation	74
5.3: Clear-Up Rates	77
5.3.1: Spatial Distribution of Clear-Up Rates in Christchurch	77
5.3.2: Patterns of Changes in Clear-Up Rates	79

5.3.3: Clear-Up Rates by Deprivation	81
5.4: Conclusions	86
 Chapter Six: Becoming Acquainted with the Burglar	 87
6.1: Introduction	88
6.2: Who is the Burglar?	88
6.2.1: Offender's Gender	88
6.2.2: Offender's Age	89
6.2.3: Offender's Ethnicity	90
6.2.4: Offender's Occupation	91
6.2.5: Deprivation Deciles of Offender's Address	92
6.2.6: Number of Burglaries Committed by Offenders	99
6.2.7: Number of Offenders Committing Each Burglary	101
6.2.8: Other Aspects of Burglaries	102
6.3: When Does the Burglar Strike?	102
6.3.1: Time of Day	102
6.3.2: Day of Week	105
6.3.3: Month of Year	106
6.4: How Does the Burglar Enter?	110
6.5: What Does the Burglar Take?	111
6.6: How Far will the Burglar Travel	117
6.6.1: Distance by Offender's Gender	117
6.6.2: Distance by Offender's Age	118
6.6.3: Distance by Offender's Ethnicity	121
6.6.4: Distance by Offender's Occupation	122
6.6.5: Distance by Offender's Address	125
6.6.6: Distance by Victim's Address	132
6.6.7: Distance by Number of Burglaries Committed	136
6.6.8: Distance by Number of Offenders per Burglary	138

6.6.9: Distance by Amount Stolen by Offenders	141
6.7: Conclusions	144
 Chapter Seven: Nature of Targets	 145
7.1: Introduction	146
7.2: Results of Burgled and Non-Burgled Properties	146
7.2.1: Target Hardening Features of Target Survey	146
7.2.2: Defensible Space and CPTED Features of Target Survey	148
7.3: Results of Burgled Properties in Deprived and Non-Deprived Areas	155
7.3.1: Target Hardening Features of Target Survey	155
7.3.2: Defensible Space and CPTED Features of Target Survey	157
7.3.3: Characteristics of the Neighbourhoods of Burgled Properties	164
7.4: Conclusions	166
 Chapter Eight: Discussion	 167
8.1: Introduction	168
8.2: The Geography of Burglary	168
8.3: The Geography of Clear-Up Rates	170
8.4: Characteristics of the Burglaries	171
8.4.1: When do they occur?	171
8.4.2: What is taken?	173
8.5: Characteristics of the Burglars	174
8.5.1: Demographic Characteristics	174

8.5.2: How Far do Burglars Travel?	176
8.6: Characteristics of Burgled Properties	179
8.7: Conclusions	182
 Chapter Nine: Conclusions	 183
9.1: Introduction	184
9.2: Summary of Key Findings	184
9.3: GIS and Burglary	187
9.4: Future Research	188
9.5: Concluding Remarks	189
 Appendix	 191
 Appendix one: Survey of Targets	 192
 References	 194

List of Figures and Tables

Chapter One

Table 1.1: Top Ten Countries with the Highest Serious Theft Rates 1976 (Brantingham and Brantingham 1984: 257)	4
---	---

Table 1.2: Recorded Burglary Rates for England and Wales 1998/1999 to 2002/2003 (Department for Work and Pensions 2004: 1)	5
---	---

Table 1.3: Residential Burglary Statistics for Years Ending 30 June in Canterbury (Police Commissioner 2004: 26)	5
---	---

Chapter Two

Figure 2.1: Crime Triangle	19
----------------------------	----

Chapter Three

Figure 3.1: Residential Burglary Clear-Up Rates for years ending 30 June for Christchurch (Police Commissioner 2003: 26)	40
---	----

Chapter Four

Figure 4.1: Location Map Showing the Area Covered by the Christchurch Territorial Authority	49
---	----

Figure 4.2: Map of Selected Victim's Locations for Survey Analysis for Christchurch	59
---	----

Chapter Five

Figure 5.1: Total Change in Burglary Rate in Christchurch for the period 1998/99-2002/03	64
--	----

Figure 5.2: Locality Map of Suburbs in Christchurch	65
---	----

Figure 5.3: Total Burglary Rate by CAU for Christchurch for the period 1998 to 2003	66
---	----

Figure 5.4: Burglary Rate by CAU for Christchurch 1998/1999	67
---	----

Figure 5.5: Burglary Rate by CAU for Christchurch 1999/2000	68
---	----

Figure 5.6: Burglary Rate by CAU for Christchurch 2000/2001	69
---	----

Figure 5.7: Burglary Rate by CAU for Christchurch 2001/2002	70
---	----

Figure 5.8: Burglary Rate by CAU for Christchurch 2002/2003	71
Figure 5.9: Percentage Change in Burglary Rate from 1998/1999 to 2002/2003 compared to Burglary Rate (per 1000 population) in 1998/1999 for Christchurch	72
Figure 5.10: Percentage Change in the Burglary Rate by CAU for Christchurch between 1998 and 2003	73
Table 5.1: Pearson's Correlation and Gradient of the Line between Burglary Rate and Continuous NZDep 2001 Deciles of Burglaries for Christchurch (1998-2003)	74
Figure 5.11: Scatter-plot of Burglary Rates (per 1000 population) by Continuous NZDep 2001 Deciles using Census Area Unit Values for Christchurch for entire study period (1998-2003)	75
Figure 5.12: Burglary Rate (per 1000 population) by NZDep 2001 Decile for Christchurch for the period 1998-2003	76
Figure 5.13: Percentage Change in Burglary Rate by Continuous NZDep 2001 Decile for Christchurch from 1998 to 2003	76
Figure 5.14: Burglary Clear-Up Rate by CAU for Christchurch (2001-2003)	78
Figure 5.15: Absolute Change in Clear-Up Rate from 2001 to 2003 against the Clear-Up Rate in 2001 for Christchurch	79

Figure 5.16: Absolute Change in the Clear-Up Rate by CAU from 2001 to 2003 for Christchurch	80
---	----

Table 5.2: Pearson's Correlation and Gradient of the Line between Clear-Up Rate and Continuous NZDep 2001 Deciles of Clear-Up Rates for Christchurch (2001-2003)	81
--	----

Figure 5.17: Clear-Up Rate of Residential Burglary by Continuous NZDep 2001 Deciles in Christchurch (2001-2003)	82
---	----

Figure 5.18: Residuals for Line of Best Fit Equation for Clear-Up Rates 2001-2003	82
---	----

Figure 5.19: Location of Residuals for Line of Best Fit Equation for Clear-Up Rates by CAU 2001-2003	83
--	----

Figure 5.20: Clear-Up Rate of Residential Burglaries by NZDep 2001 Decile for Christchurch for the period 2001-2003	84
---	----

Figure 5.21: Log Values of Change in the Clear-Up Rate for Burglaries by NZDep 2001 Decile for Christchurch (2001-2003)	85
---	----

Chapter Six

Figure 6.1: Percentage of Offenders by Age for Christchurch (2001-2003)	89
---	----

Figure 6.2: Percentage of Offenders by Age for Christchurch for the period 2001-2003	90
--	----

Figure 6.3: Percentage of Offenders by Ethnicity for Christchurch (2001-2003)	91
Figure 6.4: Percentage of Offenders by Occupation for Christchurch (2001-2003)	92
Figure 6.5: Percentage of Offenders in each CAU for Christchurch (2001-2003)	93
Figure 6.6: Percentage of Offenders in each CAU for Christchurch 2001	94
Figure 6.7: Percentage of Offenders in each CAU for Christchurch 2002	95
Figure 6.8: Percentage of Offenders in each CAU for Christchurch 2003	96
Figure 6.9: Percentage of Offenders by Continuous NZDep 2001 Decile for Christchurch (2001-2003)	98
Table 6.1: Count and Percentage of Offenders in each NZDep 2001 Decile for Christchurch (2001-2003)	98
Figure 6.10: Percentage of Offenders by NZDep 2001 Decile for Christchurch for the period 2001 -2003	99
Figure 6.11: Percentage of Offenders by Number of Burglaries Committed for Christchurch (2001-2003)	100

Figure 6.12: Percentage of Offenders by Number of Burglaries Committed for Christchurch for the period 2001-2003	100
Figure 6.13: Percentage of Burglaries by Number of Offenders Committing each Burglary for Christchurch (2001-2003)	101
Figure 6.14: Percentage of Burglaries by Number of Offenders Committing each Burglary for Christchurch for the period 2001-2003	102
Figure 6.15: Percentage of Burglaries by the Time of Day that they occurred for Christchurch (2001-2003)	103
Figure 6.16: Percentage of Burglaries by the Time of Day that they occurred for Christchurch (2001-2003)	104
Figure 6.17: Percentage of Burglaries by the Time of Day that they occurred for Christchurch for the period 2001-2003	104
Figure 6.18: Percentage of Burglaries by the Day that they occur for Christchurch (2001-2003)	105
Figure 6.19: Percentage of Burglaries occurring on each day by NZDep 2001 Decile for Christchurch for the period 2001-2003	106
Figure 6.20: Percentage of Burglaries Committed each Month for Christchurch (2000-2003)	107
Figure 6.21: Percentage of Burglaries by Month for Christchurch for the period 2000-2003	108

Figure 6.22: Percentage of Burglaries Committed each Month for Christchurch for the period 2000/2001-2002/2003	108
Figure 6.23: Percentage of Burglaries Seasonally for Christchurch for the period 2001-2003	109
Figure 6.24: Absolute Changes in Percentage of Burglaries per Month between each year for the period 2000/2001 to 2002/2003	110
Figure 6.25: Entry Methods Used by Offenders to Gain Entry to Burgled Properties for Christchurch (2001-2003)	111
Figure 6.26: Percentage of Burglaries by Amount Stolen for Christchurch (2001-2003)	112
Figure 6.27: Percentage of Burglaries by Amount Stolen for Christchurch for the period 2001-2003	112
Figure 6.28: Average Amount Stolen in Burglaries by the NZDep 2001 Decile of the Victim's Address for Christchurch (2001-2003)	114
Figure 6.29: Amount Stolen in Burglaries by the Continuous NZDep 2001 Deciles of the Victim's Address for Christchurch (2001-2003)	114
Table 6.2: Averages, Standard Deviations and Sample Sizes of the Amount Stolen by NZDep 2001 Decile for Christchurch (2001-2003)	115

Figure 6.30: The Value of Goods Stolen in Burglaries by the Level of Deprivation of the Area in which the Victim Lives for Christchurch 2001-2003	115
Figure 6.31: Percentage of Items Stolen During Burglaries for Christchurch 2001-2003	116
Table 6.3: Averages, Standard Deviations and Sample Sizes for the Distances Travelled to Burgle for Christchurch (2001-2003)	117
Table 6.4: Averages, Standard Deviations and Sample Sizes of Distances Travelled to Commit Burglary by the Gender of the Offender for Christchurch (2001-2003)	118
Figure 6.32: Average Distance Travelled to Commit a Burglary by Offender's Age for Christchurch (2001-2003)	119
Figure 6.33: Average Distance Travelled to Commit a Burglary by Offender's Age for Christchurch (2001-2003)	120
Table 6.5: Averages, Standard Deviation and Sample Size for the Distance Travelled to Commit a Burglary by Offender's Age for Christchurch for the period 2001-2003	120
Table 6.6: Averages, Standard Deviations and Sample Sizes of Distances Travelled by Offenders to Commit Burglaries by their Ethnicity for Christchurch (2001-2003)	121
Figure 6.34: Average Distance Travelled to Commit a Burglary by Offender's Ethnicity for Christchurch (2001-2003)	122

Figure 6.35: Average Distance Travelled to Commit a Burglary by Offender's Occupation for Christchurch (2001-2003)	123
--	-----

Figure 6.36: Average Distance Travelled to Commit Burglary by the Offender's Occupation for Christchurch for the period 2001-2003	124
---	-----

Table 6.7: Averages, Standard Deviations and Sample Sizes of the Distances Travelled to Commit Burglary by the Offender's Occupation for Christchurch (2001-2003)	124
---	-----

Figure 6.37: Average Distance Travelled by Offenders from their Address by the Level of Deprivation of the Area in which they live for Christchurch for the period 2001-2003	126
--	-----

Table 6.8: Averages, Standard Deviations and Sample Sizes for the Distance Travelled by Offenders by the Level of Deprivation in which they Live for Christchurch for the period 2001-2003	126
--	-----

Table 6.9: Number and Percentage of Offenders (2001-2003) Travelling Specified Distances by Deprivation Status of the Area in which they lived for Christchurch	127
---	-----

Table 6.10: Relationship between Distance Travelled by Offenders and Deprivation Status of the Area in which they Lived for Christchurch (2001-2003)	128
--	-----

Figure 6.38: Distance Travelled by Offenders by NZDep 2001 Decile in which they live for Christchurch (2001-2003)	128
---	-----

Figure 6.39: Mobility Map of Distance Travelled to Burgle for Offenders
Living in Low-Deprivation Areas for Christchurch 2001-2003

130

Figure 6.40: Mobility Map of Distance Travelled to Burgle for Offenders
Living in High-Deprivation Areas for Christchurch 2001-2003

131

Figure 6.41: Average Distance Travelled by CAU to Commit a Burglary from
the Victim's Address for Christchurch (2001-2003)

133

Figure 6.42: Average Distance Travelled by Offenders to Commit a Burglary
by NZDep 2001 Decile in which the Victim Lives for Christchurch
for the period 2001-2003

134

Figure 6.43: Distance Travelled by Offenders to Commit a Burglary by
Continuous NZDep 2001 Deciles in which the Victim Lives for
Christchurch (2001-2003)

134

Table 6.11: Averages, Standard Deviations and Sample Sizes for the
Distances Travelled by Offenders to Commit a Burglary by the
NZDep 2001 Decile in which the Victim Lives for Christchurch
(2001-2003)

135

Figure 6.44: Average Distance Travelled by Number of Burglaries Committed
by an Offender for Christchurch (2001-2003)

137

Figure 6.45: Average Distance Travelled to Commit a Burglary by Number of
Burglaries Committed for Christchurch for the period 2001-2003

137

Table 6.12: Averages, Standard Deviations and Sample Sizes of Distances
Travelled to Commit a Burglary by Number of Burglaries
Committed for Christchurch for the period 2001-2003

138

Figure 6.46: Average Distance Travelled to Commit a Burglary by Number of
Offenders per Burglary for Christchurch (2001-2003)

139

Figure 6.47: Average Distance Travelled to Commit a Burglary by Number of
Offenders per Burglary for Christchurch for the period 2001-2003

140

Table 6.13: Averages, Standard Deviations and Sample Sizes for the
Distances Travelled to Commit Burglary by the Number of
Offenders per Burglary for Christchurch (2001-2003)

140

Figure 6.48: Average Distance Travelled to Commit a Burglary by Amount
Stolen for Christchurch (2001-2003)

142

Figure 6.49: Average Distance Travelled to Commit a Burglary by Amount
Stolen for Christchurch for the period 2001-2003

142

Table 6.14: Averages, Standard Deviations and Sample Sizes of the Distances
Travelled to Commit a Burglary by Amount Stolen for
Christchurch for the period 2001-2003

143

Chapter Seven

Figure 7.1: Percentage of Burgled and Non-Burgled Properties in Christchurch by the Height of the Fence that Borders the Road

147

Figure 7.2: Percentage of Burgled and Non-Burgled Properties in Christchurch by the Fence Type that Borders the Road

147

Figure 7.3: Percentage of Burgled and Non-Burgled Properties in Christchurch by Varying Visibility of the Inside of the Houses on those Properties

149

Figure 7.4: Percentage of Burgled and Non-Burgled Properties in Christchurch by the Entry Points that are Visible from the Street

149

Figure 7.5: Percentage of Burgled and Non-Burgled Properties in Christchurch by the Presence of Shrubbery Surrounding the Specified Entry Points

151

Figure 7.6: Percentage of Burgled and Non-Burgled Properties in Christchurch by the Hiding Places that are present on those Properties

151

Figure 7.7: Percentage of Burgled and Non-Burgled Properties in Christchurch by the Position of those Properties along the Street

152

Figure 7.8: Percentage of Burgled and Non-Burgled Properties in Christchurch by the Distance of the House from the Street

154

Figure 7.9: Percentage of Burgled and Non-Burgled Properties in Christchurch by the Overall Appearance of those Properties

154

Figure 7.10: Percentage of Burgled Properties in Deprived and Non-Deprived Areas in Christchurch by the Height of the Fence that Borders the Road

156

Figure 7.11: Percentage of Burgled Properties in Deprived and Non-Deprived Areas in Christchurch by the Fence Type that Borders the Road

156

Figure 7.12: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Visibility of the Inside of the Properties

158

Figure 7.13: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Visibility of Entry Points on the Properties

158

Figure 7.14: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by which Entry Points were Surrounded by Shrubberty

159

Figure 7.15: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Hiding Places that were Present

160

- Figure 7.16: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Position of the Property along the Street 161
- Figure 7.17: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Type of House 162
- Figure 7.18: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Distance of the House from the Street 163
- Figure 7.19: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Overall Appearance of the Property 163
- Figure 7.20: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Type of Area in which they were Located 164
- Figure 7.21: Percent of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Type of Street on which they were Located 165
- Figure 7.22: Percentage of Deprived and Non-Deprived Burgle Properties within Two-Blocks of Specified Land-Use Types for Christchurch 166

List of Abbreviations

BCS	British Crime Survey
CAU	Census Area Unit
CBD	Central Business District
CPTED	Crime Prevention through Environmental Design
GIS	Geographical Information Systems
NSG	Neighbourhood Support Group
NW	Neighbourhood Watch
NZDep 2001 Decile	New Zealand Deprivation Deciles for the 2001 Census
THP	Target Hardening Programme
YOT	Youth Offending Teams

Chapter One: Introduction

1.1: Context

Residential burglary is a major problem in urban areas internationally. In New Zealand the burglary rates are among the highest in the world (Buchanan and Hartley 1996). The geography of burglary was the focus of many urban social geography research studies from the late 1970s to the mid 1990s. However, the interest in the geography of burglary has diminished. There are many facets to residential burglary, for instance the spatial and temporal distribution of burglary and clear-up rates, the characteristics of the burglar, the distances travelled by the burglar to commit a burglary, characteristics of the burglary and characteristics of the burgled property. Each of these facets has been researched to some extent in other studies individually. Therefore, this thesis attempts to incorporate all of these aspects. The spatial distribution of residential burglary is anything but uniform. Therefore, it is important to research the many factors that influence the residential burglary distribution. The majority of the research studies have been conducted internationally, but not in New Zealand, and especially not in Christchurch. Thus, it is of great importance to study the spatial and temporal distribution of burglary at a local level, in Christchurch.

The spatial and temporal distribution of burglary and clear-up rates is important, as the distributions can aid in providing a visualisation of any areas in the city that have disproportionate burglary rates. Spatial and temporal distributions of burglary and clear-up rates can also aid in identifying the presence of any relationships between burglary or clear-up rates and socio-economic actors. The distribution of burglary rates can illustrate areas of the city that require additional police attention to reduce burglary rates. The distribution of clear-up rates can illustrate the changing focus of police initiatives. For example, it may make it easier to see which areas of the city are being targeted by the police over time.

The socio-demographic characteristics of the offender are also important as they can provide insights into the populations at risk of offending. Additionally, the offender's residence is important as it can provide a spatial context to the location of offenders. The socio-demographic characteristics of offenders include the offender's age, gender, ethnicity and occupation. The identification of the distances travelled by offenders to burgle can be useful in analysing their behaviour. This could be especially useful if the way in which the

distance travelled was influenced by various socio-demographic characteristics of offenders was identified. The characteristics of the burglary event can also lend proof to the motivations of the burglar. For instance, some offenders may commit burglary for self-preservation so very little is stolen. Alternatively, offenders may commit burglaries because of greed, when items of great value are stolen; others may offend solely because the opportunity presents itself.

The characteristics of the burgled property can be significant as they can illustrate how important opportunity is to offenders, as some houses are easier to enter or appear more suitable to offenders. They may appear more suitable, for example if the houses have items of greater value to steal and inadequate security measures in place. That is, there may be very few costs and very many benefits. Other characteristics that could be identified, and that are important are the dynamics within neighbourhoods. For example, in some neighbourhoods people are more aware of their neighbours, thus the offender may be more conspicuous in them. It is important then to identify the characteristics of the properties that are different for burgled and non-burgled properties, and further analyse them based on whether the properties were in deprived or non-deprived areas.

As the definition of burglaries varies internationally it is important to define what is meant by burglaries in this study. The definition of burglary, in this context, is derived from section 241 of the Crimes Act 1961 as meaning any instance of a person breaking into and/or entering a building without the expressed permission of the owner of the property, with the intent to commit a crime within.

1.2: International Variation in Burglary Rates

Reported cases of residential burglary have increased internationally since the 1950s. Furthermore, burglary rates throughout the western world, more than tripled between 1960 and 1978 (Feldman 1993). However, in the past decade reported cases of residential burglary have fluctuated. A brief overview of these trends will be given in the proceeding paragraphs to provide a background of international burglary rates and how they compare to Christchurch's burglary rates.

In 1976, New Zealand was listed as one of the ten countries with the highest serious theft rates (which includes burglary and robbery) (Table 1.1). In this table, New Zealand was shown as having a higher burglary rate than England and Wales, and Australia.

Table 1.1: Top Ten Countries with the Highest Serious Theft Rates 1976 (Brantingham and Brantingham 1984: 257)

Country	Rank	Rate (per 1,000 population)
Bahamas	1	21.26
Sweden	2	18.47
West Germany	3	17.48
U.S.A	4	16.35
Denmark	5	13.50
Canada	6	12.66
New Zealand	7	12.13
England & Wales	8	10.72
Netherlands	9	9.61
Australia	10	9.37

There has been an overall international increase in the burglary rates since the mid-twentieth century that continued until the mid 1990s. The increase was apparent for the longest period in Canada where the burglary rate rose from 1880 to 1970 (Brantingham and Brantingham 1984). An increase was also evident in Australia where the burglary rate increased by 11 per cent during the period 1983 to 1993 (Philips and Walker 1997).

In the past decade, international burglary rates have fluctuated, however, burglary rates have decreased overall. This pattern is evident in England and Wales in the past five years, as within those five years the burglary rate fluctuated, decreasing from 1998/1999 to 2000/2001 then increasing to 2002/2003 (Table 1.2).

**Table 1.2: Recorded Burglary Rates for England and Wales 1998/1999 to 2002/2003
(Department for Work and Pensions 2004: 1)**

Year	Burglary Rate (per 1,000 Households)
1998/1999	22.0
1999/2000	20.7
2000/2001	18.4
2001/2002	19.4
2002/2003	20.2

The burglary rates increased in New Zealand until the mid 1980s when they began fluctuating. For example, from 1978 to 1987 the number of reported burglaries in New Zealand almost doubled (from 48,078 to 77,941) (Field 1989). Then in the mid 1980s, the burglary rates decreased from 1986 (~25 per 1,000 population) to 1988 (~23 per 1,000 population), then increased until 1992 (~29 per 1,000 population), decreasing again until 1995 (~23 per 1,000 population) (Statistics New Zealand 1996). Christchurch has shown a similar trend to New Zealand as a whole. A summary of the residential burglary statistics for Canterbury in the past six financial years (1998/1999 to 2003/2004) demonstrates an overall decrease in the burglary rate from 10.6 (per 1,000 population) to 9.6 (per 1,000 population), however the burglary rates fluctuated (Table 1.3).

**Table 1.3: Residential Burglary Statistics for Years Ending 30 June in Canterbury
(Police Commissioner 2004: 26)**

Financial Year	Total Recorded Burglaries	Total Estimated Canterbury Population	Recorded Burglaries Rate (per 1000 population)
1998/1999	5,160	485,175	10.64
1999/2000	5,571	487,040	11.44
2000/2001	4,431	489,730	9.05
2001/2002	4,384	493,060	8.89
2002/2003	4,369	502,365	8.70
2003/2004	4,890	511,830	9.55

Previous research has been conducted into the spatial distribution of burglary rates in Christchurch. Davidson (1980) found that houses in the north and west of city and in less deprived areas had a lower incidence of burglary. Areas of Christchurch in the south-east, east and centre of the city and in highly deprived areas were found to have a higher incidence of burglary. For example, he found that areas in the central city, and just to the east of the city were where approximately 32% of all burglaries occurred, however less than 10% of the population of the city was in that area (Davidson 1980). Prosser (1996) also explored the distribution of burglary rates in Christchurch and found the high risk areas to be in the central city, in the east and south of city again where high rates of deprivation occurred. The low risk areas were found to be in the north-west of the city and the more affluent areas. Hence, there was a positive relationship found between the incidence of burglary and deprivation that was consistent over a 15-year period (Davidson 1980, Prosser 1996).

The increase in burglary rates over the past thirty years has been attributed to an increase in women working outside the home, leaving houses unoccupied for longer periods during the day (Weisel 2002). The increase, especially after World War Two, may be attributed to an increase in the economy and technology, leading to a greater number of households owning more lightweight easily portable electronic items which are attractive to potential burglars (Brantingham and Brantingham 1984). The increases in burglary rates could also be attributed to the changing demographics in the global populations. For example, in the 1970s the majority of the baby-boomers began reaching the peak offending age (between 15 and 30 years), and the burglary rates increased until the mid 1990s, when the last of the baby-boomers left the peak offending age group and the burglary rates began decreasing (Brantingham and Brantingham 1984, Statistics New Zealand 2003). Additionally, the increase in burglary rates may be related to increasing rates of unemployment. For example, the increase in burglary rates in Britain in the 1970s coincided with a mass increase in unemployment (Pacione 1997, Wilson & Herrnstein 1985). Changing police initiatives in targeting burglaries may have also influenced the rates of burglary (Brantingham and Brantingham 1984).

1.3: Research Objectives

The three main research objectives that this thesis aims to achieve are:

1. to identify ecological trends in the spatial and temporal distribution of residential burglary and clear-up rates in Christchurch for the years 1998-2003.
2. to analyse the spatial and temporal distribution of burglars and the distance to burgles in Christchurch for the years 2000-2003.
3. to evaluate the features of burgled and non-burgled properties in Christchurch.

1.4: Structure of Thesis

This thesis consists of nine chapters that are structured around the three research objectives. After the introduction in Chapter One, Chapter Two will review the literature pertaining to research objectives one and two. It will provide a brief overview on the changing approaches in urban social geography. More specifically, this chapter will cover the positivist, behaviouralist, humanistic, and structuralist approaches used by urban geographers. It will explain how these approaches relate to the study of burglary and evaluate each approach based on how useful it is to achieve the research objectives.

Chapter Three will review the literature relating to research objectives one and three. The impacts of, and responses to burglaries will be explored in this chapter. The individual responses will include such things as fear of burglary, the effects of repeat victimisation, and the ways in which individuals and communities attempt to reduce burglaries. The methods individuals and communities could use includes target hardening, defensible space, crime prevention through environmental design (CPTED) and implementing Neighbourhood Watch groups. The ways in which government agencies respond to burglaries will also be discussed in this chapter, including changes in clear-up rates and burglary reduction initiatives that have been implemented nationally and internationally.

Chapter Four will discuss how the three research objectives will be achieved. The data sources used will be described, and the methods employed to obtain the data. The forms of analysis used in this thesis will also be explained including both qualitative and quantitative methodologies, which incorporate spatial, temporal and statistical analysis. A survey conducted on the burgled properties and an interview with police also helped demonstrate specific spatial and temporal aspects of burglaries.

Chapters Five, Six and Seven will present the results of the analysis. The results regarding research objective one will be described in Chapter Five. More specifically this chapter will present the ecological trends in the spatial and temporal distribution of residential burglary in Christchurch from 1998-2003. The ecological trends in the spatial and temporal distribution clear-up rates of burglary will also be presented in this chapter.

The results that will be presented in Chapter Six will relate to research objective two. The results pertain to the analysis of the socio-demographic characteristics of offenders, the characteristics of the burglaries, the distance offenders travelled to commit a burglary and how this distance was influenced by the socio-demographic characteristics of the offender.

Chapter Seven will present the results of the conducted survey on the burgled properties and adjacent non-burgled properties in Christchurch. The results of the survey fulfil research objective three. The characteristics of the properties relate to the target hardening, defensible space, CPTED and neighbourhood characteristics discussed in Chapter Three.

Chapter Eight will discuss the key themes that resulted from the analysis with regard to the three research objectives. Specifically many spatial and temporal aspects of residential burglary in Christchurch will be compared and contrasted with studies from Christchurch, New Zealand and internationally. This discussion will provide valuable information as it will update the academic literature regarding burglaries in Christchurch, and it will help the police identify which areas have excessive burglary rates and minimal clear-up rates.

Chapter Nine will present the conclusions that can be made from this research. This chapter will also provide a critique of the research in this thesis and discuss further research possibilities.

Chapter Two: Changing Approaches and Methodologies in the Study of Burglary

Several components of behavioural geography are useful for understanding criminal behaviour (Rengert 1989: 162)

2.1: Introduction

Geographers and social scientists have developed and utilised many approaches to describe and analyse the urban environment and problems that develop from the human interaction in urban environment such as burglary. The aim of this chapter therefore is to briefly summarise the variety of approaches that geographers have used to study burglary. These have included ecological, behavioural, humanistic and structural approaches which have attempted to provide both environmental and individual explanations of burglary. In order to provide a theoretical background for this thesis the chapter briefly outlines the development and key characteristics of these different approaches, followed in turn by a description of how each approach directly relates to the study of burglary and how relevant each will be to this thesis. A critique of each approach will also be provided. The discussion and evaluation in this chapter will provide insight into how to approach this study. It will give examples of how other geographers have researched burglary. From those examples, the aspects of those approaches that could be utilised when applied to studying residential burglaries in Christchurch to achieve the research objectives of this study will be identified.

2.2: Positivist Approaches

Urban geography has been influenced by positivist approaches since the 1950s (Hall 2001). The positivist approach is a quantitative approach relying on replicable scientific manipulation of data sets (Johnston et al 1994, Hall 2001). For positivists, crime is not ruled by the decision making of an individual. Instead, positivists believe that universal laws determine human behaviour and that human behaviour displays fundamental uniformities (Johnston 1986, Hall 2001, White and Haines 2001). Thus, the aim of positivism is to reveal those fundamental laws. Similarly, in the context of burglaries, positivism seeks to examine and explain patterns of burglaries and reasons for them, given the essential premise that non-burglars are fundamentally different from burglars (Johnston 1986, White and Haines 2001). Hence, the focus of positivist analysis is the offender. The main method to alter the rates of burglary under this approach is to change the universal laws that govern the offender's behaviour (White and Haines 2001). Positivism can be divided into two sub-approaches; ecological and classical. Both of these approaches attempt

to identify the biological and psychological differences between criminal and non-criminal individuals that cause them to behave in the ways they do (Hall 2001, White and Haines 2001). The ecological approach can provide insights into the spatial nature of offender's behaviour and the psychological reasoning behind the offender's behaviours. This approach is related to research objective one regarding the spatial distribution of burglary, and research objective two regarding the offender's characteristics and the distances they travel to burgle.

2.2.1: Ecological Approaches

The ecological sub-approach is based on the hypothesis that the universal laws governing behaviour are ecological, thus spatial (Hall 2001, White and Haines 2001). The main theory underlying this approach is that the dominant groups would obtain the most beneficial location in a given space. For example, people in the highest socio-economic groups are more likely to obtain the best (usually suburban) location for residential settlement (Johnston 1986, Hall 2001). Related to this concept, the ecological theory incorporates Burgess's concentric zone model and Hoyt's sector model of land use which suggests that the central city areas are less desirable to live in, thus they are inhabited by young unemployed males who are transient (Hall 2001). It is the highly transient nature of the population in the central city areas that generates anonymity and increases crime rates in those areas (Hall 2001).

In the 1960s, the ecological approach developed further, as the models were refined using computers (Hall 2001). Ecological approaches include space as an active variable that influences criminality and deviance (Johnston 1986, Cater and Jones 1989). The reason that they consider space as an active variable is because even when controlling for socio-economic factors, inner-city areas still have higher crime rates (Cater and Jones 1989). Thus higher rates of crime must also be related to the environment hence the search for different ecological environmental correlates of crime, such as social disorganisation, or the influence of local sub-cultures on individual behaviour (Johnston 1986, Cater and Jones 1989, Hall 2001, White and Haines 2001).

2.2.1.1: Anomie and Social Disorganisation Theory

Anomie describes a situation where there is a lack of social norms. Social disorganisation is a function of anomie and can be the cause of crime (Wirth 1940). Social disorganisation can be defined as a society without rules, regulations and morals. These factors can be exacerbated by anonymity and mass urbanisation which are commonplace in modern society (Wirth 1940, Cater and Jones 1989). Certain areas of cities have higher rates of anonymity than others. One such area is described in Burgess' zonal model called 'zones in transition' and is defined as being the areas surrounding the Central Business District (CBD) in a city, between the central city and the suburbs (Wirth 1944, Knox and Pinch 2000, White and Haines 2001, Parker 2004). The reasons these areas have such high levels of social disorganisation is that the population of these areas is highly transient. Thus, criminals find it easier to remain anonymous in such areas and these areas become crime areas (Wirth 1944, Cater and Jones 1989, Knox and Pinch 2000). Consequently, central city areas have a high burglary rate, which has been demonstrated in the US, the UK and Christchurch (Repetto 1974, Davidson 1980, Evans 1989).

2.2.1.2: Sub-Cultures Theory

Sub-cultures can also have higher rates of criminality than the general population. They are groups of people who are raised differently from the majority of the population. Sub-groups can be groups of individuals with different cultural or ethnic beliefs. Sometimes deviant behaviour is a result of the way an individual is raised and socialised. Some individuals are socialised in deviant sub-cultures where the morals are different from the rest of the city and grow up with delinquent tendencies (Cater and Jones 1989, Savage and Warde 1993, Bounds 2004). The sub-culture theory is relevant to urban geography as the sub-cultures can be identified spatially as belonging in specific locations in urban areas (Cater and Jones 1989, Savage and Warde 1993, Knox and Pinch 2000, Parker 2004). These concepts are especially applicable to the study of burglars and burglaries because specific areas of cities in which certain sub-cultures live have higher burglary rates than other areas. However, it is important to note that it cannot be automatically assumed that if a person lives in a certain area they will display deviant behaviour (Box 1981, Davidson 1981, Herbert 1982, Cater and Jones 1989, Savage and Warde 1993, Knox and Pinch 2000).

Some examples of sub-cultures within cities include ethnic sub-cultures, socio-economic sub-cultures, drug and gang sub-cultures. Areas with a greater degree of ethnic variety have been found to have higher levels of criminal activity (Cater and Jones 1989). The use of drugs can also influence offending, as burglaries provide easy money, or in some cases, offenders will swap stolen items directly for drugs (Feldman 1993, Knox and Pinch 2000). Groups of adolescents behave similarly to gang sub-cultures (Feldman 1993). For example if the majority of the group decides to do something, everyone will want to do it. Committing crimes can be a way of proving themselves to other members of the youth gang. Studies have found the majority of offenders to be young teenage males (between 10 to 25 years) which could be supported by the theories regarding youth sub-cultures (Davidson 1981; Field 1989; Feldman 1993; Ratcliffe 2001, Weisel 2002). The groups of people in these sub-cultures can often be termed the urban underclass due to their associations with crime (Marks 1991).

2.2.2 Classical Approaches

The classical approach is the second sub-approach of positivism. This sub-approach is also based on the concept that human behaviour is motivated by one factor and is thus predictable. However, in this case the factor is assumed to be psychological (Cater and Jones 1989, Hall 2001, White and Haines 2001). In classical ideology, criminal behaviour is assumed to occur when an individual believes the benefits of acting in a particular way, such as committing a burglary, will far outweigh the consequences. For instance, with burglary, the likelihood of being caught may be minimal and the financial benefits may be quite sizeable. The focus of the classical approach is the decision making of the individual. The classical approach has been the basis of many theories on burglary (Rengert and Wasilchick 1985, Cater and Jones 1989, Cromwell et al 1991, Hall 2001, White and Haines 2001). The main cost identified for individuals, in classical approaches, are the legal implications of being apprehended (Cater and Jones 1989, Cromwell et al 1991, Buchanan and Hartley 1996, Hall 2001, White and Haines 2001). The distance an offender travels to commit a burglary is closely related to each of the classical approaches. There have been many theories developed regarding the ways in which offenders make the decision to

commit a crime such as burglary. These theories include the following: rational choice theory, opportunity theory, and routine activities theory. The most significant theory with respect to the classical approach is the rational choice theory. The classical approach is related to research objectives one to three as it considers the distributions of burglaries, burglars, their characteristics and the characteristics of properties that may influence the risk of their being burgled.

2.2.2.1 Rational Choice Theory

The hypothesis behind the rational choice theory is that an individual decides to commit a crime only after first making a rational choice. This choice is based on the costs and benefits of committing the crime (White and Haines 2001, Lu 2003, Bounds 2004). In addition to the legal consequences that traditional classical theory considers, rational choice theory also considers social and economic factors that would influence an individual's decision (Cater and Jones 1989, Buchanan and Hartley 1996, White and Haines 2001). From a burglar's point of view, some of the benefits in committing a burglary may include the high value of the goods that could be stolen. The costs may include the effectiveness of the security measures in place, the location of the house on the property, the physical appearance of the house or legal implications should they be apprehended for committing burglary (Hakim et al 2000). An example of the thought process related to an individual committing a burglary is that if an offender perceived a certain dwelling to have more to offer in the way of valuables to steal, then that offender would be more likely to travel further to commit the burglary. Davidson (1980) provided an example of the rational choice with regard to Christchurch. He found that the properties in the less deprived areas of Christchurch experienced the greater losses due to burglary compared to the more deprived areas (Davidson 1980). Thus, the rational choice an offender makes is directly related to the distance travelled to commit a burglary (Chainey et al 2001).

2.2.2.2 Opportunity Theory

The main concept underpinning the opportunity theory is that even after an individual has chosen to commit a crime they need an opportunity and location to commit that crime (Gottfredson and Taylor 1986, Cater and Jones 1989, Hochstetler 2001, White and Haines

2001, Bounds 2004). One major factor that influences the location of the opportunities presented to an individual, is the distance that individual is able to travel. Thus, the opportunity theory is also related to the distance to burgle, which proposes that the majority of burglaries occur within a short distance, usually less than 5km, of the offender's residence (Davidson 1980, Cater and Jones 1989, Rengert et al 1999, White and Haines 2001). Before a burglary can be committed, the offender must search for a suitable target such as a house to burgle. This search is constrained by many factors which may include transport of goods after the burglary, knowledge of area, how comfortable the offender feels in an area, thus the shorter the distance the offender travels in their daily activities, the fewer opportunities they will encounter (Cater and Jones 1989, Rengert et al 1999, White and Haines 2001). As opportunity theory assumes that burglars will only commit a burglary when an opportunity presents itself, and when the burglar is motivated to commit a burglary, logically then, by reducing the opportunities the burglary rate will decrease (Rengert 1989, Wright and Decker 1994). The opportunity theory is especially relevant for young offenders as studies have found that generally the younger the burglar the more likely it is that they are opportunistic (Davidson 1980, Field 1989, Weisel 2002).

The temporal dimension of burglaries is also related to the opportunity theory. Studies have shown that the majority of burglaries occur in the warmer months of the year (Field 1989, Jones 1996, Beki et al 1999, Weisel 2002). This trend is most likely due to the behaviour of the victims, which give the offenders more opportunities to commit burglaries. For example during summer, people tend to leave more windows and doors open, providing easy access to a property thus increasing the opportunities for the burglar and therefore increasing the burglary rate (Weisel 2002). It has been found that burglars do not like to go out in the rain. Hence, the burglary rate has been positively related to fine weather (Beki et al 1999). The seasonal trend has also been supported by the findings that in some areas of Wales it has been found that burglaries occur in high summer (Jones 1996). This trend is also evident in New Zealand, as approximately half of the burglaries occur during the holidays (December to February) (Field 1989).

The opportunities to burgle properties also vary by times of the day. For instance, generally during the working week (from Monday to Friday) between 08:00 and 18:00 many people are at work or at school, leaving their houses unoccupied increasing the opportunity for the offenders to burgle those houses. The most common time of day for residential burglaries to occur in the US was during the daytime (60%) which is when the majority of people are out of the house for work purposes (Weisel 2002). Daytime was also the common time of day for residential burglaries to occur in Australia, specifically weekdays from 08:00 to 18:00 (Ratcliffe 2001).

2.2.2.3: Routine Activities Theory

Closely related to the opportunity theory is the routine activities theory which proposes how a burglar will encounter a suitable target. It is based around the hypothesis that a criminal's daily routine will expose them to certain opportunities and bring them into contact with suitable targets (Rengert 1989, Siegel 1992, Fisher and Wilkes 2003, Lu 2003). The hypothesis that the routine activities theory is centred around is that because an offender will come into contact with potential targets in their normal daily routine, the potential target is usually within close proximity to their home or their friend's or relative's homes or even their work place. In Australia, England and the US, offenders have been found to travel short distances from their homes to commit burglary (Pyle 1974, Reppetto 1974, Rengert et al 1999, Wiles and Costello 2000, Ratcliffe 2003). Some offenders commit a burglary on a property that they had encountered during the course of their legitimate workday, such as a repairman would do, or a furniture mover. Even tradespeople who worked outside a dwelling could gauge how attractive a potential target would be. These people may include gardeners, or roofers (Wright and Decker 1994).

The focus of the routine activities theory is on the spatial and temporal organisations of events that lead to an offender committing a crime (Rengert 1989, Siegel 1992, Fisher and Wilkes 2003, Lu 2003). This theory suggests that as offenders will definitely commit a burglary, there is no need to find out their motivations. Instead, the focus is on attempting

to prevent the offender from finding a suitable target (Brunet 2002). There are three factors that interact to increase the risk of burglary: a potential target, the absence of a capable guardian of the target, and the attractiveness of the target. These factors can be visualised in the form of a 'crime triangle' (Figure 2.1). When all of these factors are present in time and space a burglary will occur. The importance of these factors to the routine activities theory is that, if an offender encounters a suitable target in their daily routine, the risk of burglary can still be greatly reduced by decreasing the attractiveness of the targets, thus the likelihood of an offender committing a burglary is minimised. The attractiveness of a target can be reduced by decreasing the visibility of valuables inside the house, and by increasing visible security measures. Additionally the risk of a burglary can be reduced by ensuring there is a capable guardian or evidence of a capable guardian at the property. For instance if someone is home then the property would have a capable guardian, or if no-one is home, having a security alarm or a dog are also ways of ensuring the home is protected, thus reducing the risk of burglary.

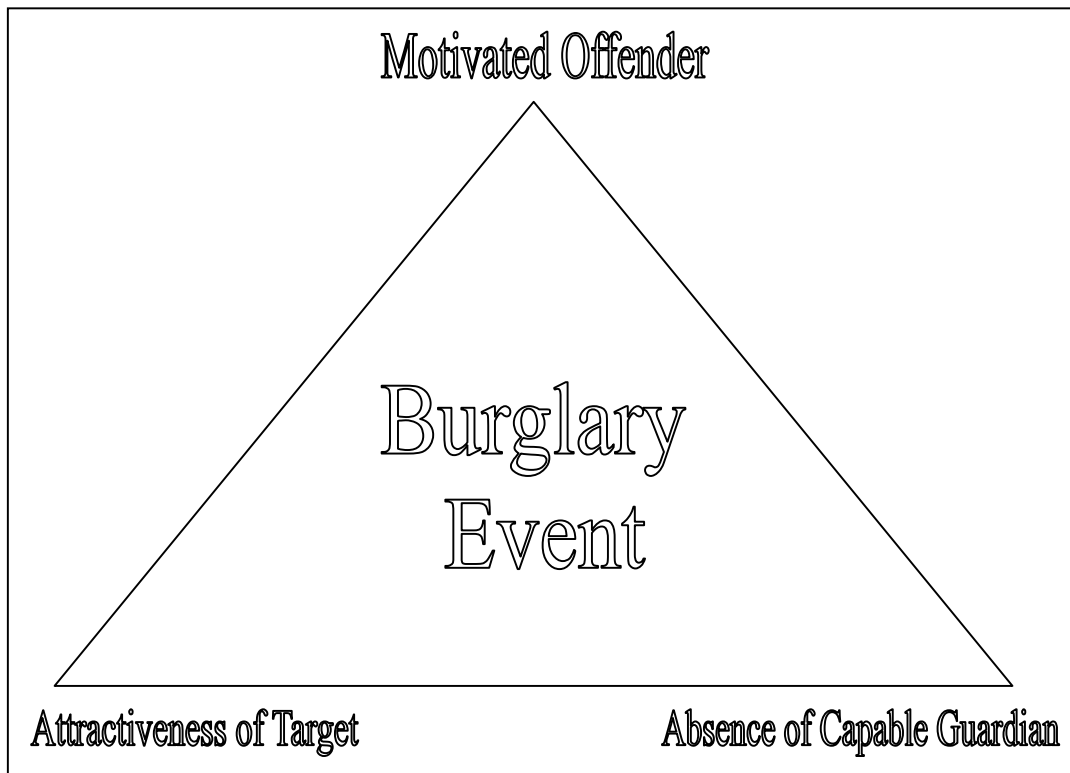


Figure 2.1: Crime Triangle

2.2.3 Evaluations of Positivist Approaches

Positivism has contributed greatly to the discipline of urban geography and to the methodologies and theories regarding burglaries. However, it has been criticised for ignoring important factors and motivations for human behaviour (Hall 2001, White and Haines 2001). The positivist approach relates to why an offender commits crimes in the places they do. It does not question the fact that the offender will or will not commit the crimes. It has been suggested that positivist approaches are very poor models of reality as they are based on excessively simplistic assumptions (Hall 2001, White and Haines 2001). One reason for this criticism of the positivist approaches is that there is a focus on environmental influences of behaviour, but the influence is not examined across scales. In addition, there is very little focus on the effects of the social environment on an individual's propensity to commit crime (White and Haines 2001). However, many aspects of the positivist approaches are relevant to this thesis. For example, as examining the distance to

burglary is one of the research objectives the classical approaches are very important. The crime triangle is also important to achieve research objective three as the characteristics of burgled and non-burgled properties will be examined. As the aim of research objective one is to identify spatial and temporal trends of burglary, both ecological and classical approaches are relevant.

2.3 Behaviouralist Approaches

The behaviouralist approach is very much an extension of positivism. The aim of behaviouralist approaches was to expand the positivist approach and articulate more fully the individual values and subjective motivations underpinning human behaviour (Hall 2001). The behavioural approach was developed through the culmination of the classical approaches. Behavioural approaches to urban geography include a psychological analysis of human behaviour, thus there was still a focus on searching for uniform laws to explain the behaviours of individuals (Johnston et al 1994, Hall 2001). These approaches made assumptions about human behaviour in order to develop theories on spatial analysis (Johnston et al 1994). This approach assumes that offenders would develop a mental map of their neighbourhood which would include the potential houses or likely targets for burglary in their community. Behavioural explanations have been very useful in explaining why burglaries occur because behavioural explanations are process oriented. The behavioural explanations examine how people react and interact with the physical and social environment, and how these interactions can result in burglaries (Golledge 1979). Behavioural theory provides many explanations as to why burglaries occur. The behavioural explanations can be categorised by way of the rational thought theory, opportunity theory and routine activities theory (as previously described). The control theory, the strain theory and the inheritance theory also contribute to the behavioural explanations of burglary. These theories delve into some of the decision-making processes that occur in an offender's mind. They also explore how the offender behaves in relation to the environmental factors that surround them. Behaviouralist approaches to urban geography are important in understanding these factors. The reason that they are important is because the primary focus of behaviouralism is on the spatial decision-making process of offenders. The decisions can be analysed as behaviour in space or as spatial behaviours, for

instance how criminals use the space available to them, how they interact in space (Rengert 1989). Thus, behaviouralist approaches are also related to research objectives one to three, as is the classical approach because they also consider the distributions of burglaries, burglars, their characteristics and the characteristics of properties that may influence the risk of their being burgled

2.3.1: Control Theory

Control theory suggests that all individuals are potentially likely to commit crimes. It is the societal norms and values bestowed upon individuals by their parents and authority figures that influence whether or not an individual will actually commit crimes (Johnston 1986, Buchanan and Hartley 1996). These societal norms and values are a form of social control. Individuals who have been raised with values that are inconsistent with the rest of the society's values are the individuals who commit crimes (Johnston 1986). For example, a child who has been brought up to consider stealing an acceptable behaviour will not think burglary is wrong and proceed to commit burglaries.

2.3.2: Strain Theory

The strain theory as part of the behavioural approach is based around the theory that if an individual is ill equipped to deal with stress, that individual may behave in a delinquent manner (Buchanan and Hartley 1996, White and Haines 2001). Some groups of individuals may be less adept to deal with stress or they may have different ways of dealing with it. The strain theory hypothesises that lack of economic wealth and a lack of legal means to earn money generate frustration and strain that lead to crime (DeFronzo 1996). The general precept of this theory is that all people have goals, most of which fit in with societal norms. When these goals cannot be reached then an individual will accept that and change their goal to a more easily obtainable goal. Alternatively, they will use illegal means to obtain their goals, such as burglary (Feldman 1993, Pacione 1997). Many factors can indicate whether an individual will react to strain by legal or illegal means. These include the individual's intelligence, temperament, self-esteem, inter-personal skills, social support systems and their peers. The less economically or socially adept an individual is, the harder it is for them to achieve their goals. Therefore, the strain theory assumes crime to be

produced by society's values (Hagan 1994). For example if a person cannot achieve economic prosperity through legitimate employment, then some individuals who are ill-equipped to deal with stress, will burgle houses to make money in order to achieve economic prosperity.

2.3.3: Inheritance Theory

The inheritance theory proposes that criminality is a quality inherent in some families (Cohen 1968, Miethe and Meier 1994, Pacione 1997). Certain genetic traits have been suggested by the inheritance theory to cause criminal behaviour. Thus, inheritance theory suggests it is not the fault of society that an individual commits crimes (Cohen 1968, Pacione 1997). This trait can be further developed if the individual is exposed at an early age to crimes, such as burglary. For instance if either their parents or peers are active burglars this criminal behaviour provides an example to the youths of how to behave as a functioning member of society (Cohen 1968, Miethe and Meier 1994, Buchanan and Hartley 1996, Pacione 1997). Moreover, being exposed at an early age to crime influences the way offenders distinguish between right and wrong (Meithe and Meier 1994).

2.3.4 Evaluations of Behaviouralist Approaches

Behaviouralist approaches have attempted to develop the positivist approaches of urban geography. However, it has still been overly concerned with defining the law-like generalisations that control human behaviour (Hall 2001, White and Haines 2001). Behaviouralists attempt to treat all individuals the same and assume they behave in the same manner, which is particularly visible in the inheritance and strain theories (Johnston et al 1994). Many individuals with the same upbringing as offenders do not offend. Hence, additional factors need to be considered with behavioural theories of criminality. Behaviouralism does provide many developmental reasons for individuals to turn to crime. As the behaviouralist approach also draws on many of the themes in the positivist approach it will be used in this thesis. The strain theory provides insights that will be required to achieve research objective two which deals with the socio-demographic characteristics of offenders.

2.4 Humanistic Approaches

The humanistic approach is a radical departure from the quantitative scientific approaches, such as the positivist and behaviouralist approaches that dominated the 1950s and 1960s (Hall 2001). However, humanism is united with behaviouralism in its conviction that individuals, and the ways in which individuals make sense of their environment, should be central in its approach to urban geography (Johnston 1986, Hall 2001). Humanism initially developed alongside behavioural geography. However, it soon took another direction when it was acknowledged that there was a degree of subjectivity from the researcher and the researched, which was essential to the process of research and needed to be identified and discussed. Humanism was different from behavioural approaches which required objectivity in analysing research results (Johnston 1986, Johnston et al 1994). The identification of the significance of humans in the urban social environment is an important concept in humanism because humanism is concerned with attempting to understand the subjective and complex unique relationships between people, communities, and landscapes (Johnston 1986, Johnston et al 1994, Hall 2001). The humanistic approach also uses vastly different methods from previous approaches because of its qualitative nature. The methods employed by this approach include: the interpretation of paintings, photographs, poems, films, novels, biographies and diaries (Hall 2001). Conducting interviews with people, making observations about aspects of society and the urban environment, and observing of the way in which people interact within the social and urban environment are common of conducting humanistic approaches (Johnston 1986).

There are four main humanistic approaches relevant to human geography: Idealism, Pragmatism, Phenomenology and Existentialism (Johnston 1986). The idealistic approach is based on the concept that individuals construct theories that govern their behaviour (Johnston 1986, Kitchin and Tate 2000). These theories are developed through an individual's experiences, but are also related to the society in which the individual grew up. Pragmatism is based on the belief that actions are structured by an individual's subjective interpretation of the world (Ayer 1968). It is only through subjective, humanistic methodologies however, that those interpretations may be discovered, and the reasons for an individual's actions will be unearthed (Johnston 1986). The concept behind

phenomenology is to investigate and describe events that individuals experience (Spielberg 1975, Kitchin and Tate 2000). The investigation into these events can provide explanations of the experiences individuals have, thus providing insights into their behaviour (Johnston 1986). Conversely, existentialist theory suggests that reality is not a result of random events, but a result of an individual's deliberate behaviours and actions (Johnston 1986, Kitchin and Tate 2000). Because individuals' actions are the cause of reality, some individuals have difficulties accepting responsibilities for their actions, thus they blame their failures on others (Greene 1959, Johnston 1986). A great deal of research into burglars has been based on the humanistic approach. For example, Wright and Decker (1994) interviewed burglars to gain insight into their experiences, and the theories behind their actions. In another study, interviews were conducted on five burglars, also giving insights into their experiences and behaviour (David 1974). Additionally many other studies have relied on the opinions and experiences of burglars to support their theories (Cromwell et al 1991).

2.4.1 Evaluations of Humanistic Approaches

Humanistic approaches to urban geography can provide many relevant insights to an offender's behaviour. That is because this approach primarily aims to improve the general understandings of individuals' perceptions to and experiences of the social and urban environment. It also aims to improve the understanding of how these experiences influence the individual's behaviour. Humanism has been criticised for being more concerned with the interpretation and construction of insights into the relationships between people and their environments than it was with the development and construction of descriptive statistical models of urban forms (Johnston 1986, Hall 2001). Some of the concepts relating to humanistic approaches are relevant to the study of burglary, such as exploring the experiences an individual has had which has led them to commit burglary. Additionally, if the reasons for the actions are understood then it may make it easier to predict which individual will offend thus improving the ability to reduce burglary rates. The qualitative methodologies relating to interviewing will be used, however the police, not the offenders will be interviewed. However, many of the concepts of humanism are not expressly utilised in this thesis as the focus is predominantly quantitative not qualitative (as in humanism).

2.5 Structuralist Approaches

A critique undertaken by researchers of the previous three approaches led to the development of the structuralist approaches in urban geography (Johnston 1986). Structuralism was developed due to an outcry for urban geography to identify and resolve the social problems that were rife in urban areas (Hall 2001). It was felt that quantitative positivist approaches failed to consider the social problems in urban society (Hall 2001, White and Haines 2001). Other quantitative approaches were also criticised for ignoring the effects of the capitalist system on urban societies (Hall 2001, White and Haines 2001). Structuralists are united by their belief that social and spatial relations are either influenced in some way by, or determined by the production needs inherent in capitalist policy (Knox and Pinch 2000, Hall 2001). The focus of the structuralist approach is to observe and uncover the underlying mechanisms that govern individuals' behaviour and why societies function in the way they do (Knox and Pinch 2000, Hall 2001). Structuralist theories suggest crime occurs in capitalist societies as an outlet for the lower social-classes to express their dissatisfaction against the inequality inherent in capitalist society (Cater and Jones 1989, Hall 2001, Parker 2004). Theorists also suggest that certain social classes are more 'crime-prone'; again due to the inequality in capitalist societies (Cater and Jones 1989). The inequalities in society that most predominantly influence crime can be defined as social inequalities such as deprivation, spatial location within cities or labelling of individuals, or they could be economic inequalities such as unemployment. Structuralism has many valid explanations as to why crime occurs. These are described below in relation to social and economic inequalities. The structuralist approaches relate to research objectives one and two. This is because the spatial distribution of burglaries relates to the structure of capitalist cities. The characteristics of offenders and distances travelled are also related to the structure of capitalist societies and cities.

2.5.1 Social Inequalities

Structuralist approaches are concerned with how social inequalities influence an individual's or society's behaviour. The social factors that are important are deprivation, spatial locations within cities and labelling. For example, people living in deprived areas

and in substandard housing have been found to have higher crime rates than those living elsewhere. Spatial locations have been identified as important to the levels of crime experienced. The reason spatial locations are important is because when groups of individuals are clustered together spatially, then their collective behaviours are reinforced by each other (this is also evident through the previously described sub-culture theory) (Box 1981, Jackson and Smith 1984). Specific areas in cities that have high levels of burglars have been found to have similar characteristics, for example, they are areas of mixed ethnicity, areas of poverty with high unemployment and low incomes, with sub-standard housing (Brantingham and Brantingham 1984, Parker 2004).

The labelling of criminals has also been suggested to increase crime in societies. The basic premise behind the labelling theory is straightforward. It suggests that once an individual commits a crime they are henceforward labelled a criminal (White and Haines 2001). After an individual is labelled a criminal, their life will be changed. For example, if respectable 'law abiding' individuals treat the offenders as deviants and social outcasts then that is how they will behave. Individuals who have been labelled criminals will not be trusted by society, and the individuals are likely to go on offending because that is what society thinks they do anyway (White and Haines 2001). After being labelled a burglar, it is likely that those individuals will continue to offend to fit in with other burglars (Pearson 1994).

2.5.2 Economic Inequality

The predominant economic inequality that has been found to influence an individual's and a society's behaviour is unemployment. This is because money is a major source of power in capitalist society (Johnston 1986, Pacione 1997). Unemployment in society can lead to resentment and criminal tendencies. For example, unemployed individuals may resent people who are employed so they may demonstrate that resentment by committing burglaries at their homes (Johnston 1986).

Economic inequality has produced a criminal urban underclass (Marks 1991). The urban underclass is an impoverished group of individuals who are a result of unemployment that is rife in capitalist society. Crime is seen as a mode of production for the urban underclass.

It is their way of achieving economic equality (Marks 1991). Thus, burglary is most common among the urban underclass because of a capitalist society.

There have been studies conducted linking burglary rates to employment rates, which have shown that in America and England during the 1960s and 1970s the increase in crime coincided with the increase in the unemployment of young males (Wilson and Herrnstein 1985; Pacione 1997). This link is also supported by the findings that a disproportionate number of burglars are unemployed (Pacione 1997). Furthermore, crime has been correlated with high levels of unemployment and income inequality in urban areas (Box 1981, Freeman 1983, Wilson and Herrnstein 1985, Wright and Decker 1994, Allen 1996, Jones 1996, Pacione 1997). Although unemployment levels have been compared to crime rates, and been found to have a positive correlation, this relationship may be a reversed causal one. For example, an offender may be more likely not to seek legal employment, as it may interfere with the time that they could be committing crime (Wilson and Herrnstein 1985, Rengert 1989, Beki et al 1999). This relationship has also been raised by Rengert (1989) who suggested that the more time burglars spend in legitimate means of employment the less time they have to commit crimes. For example, in some cases offenders will quit their legitimate jobs to have more time to burgle, especially if they make more money or experience greater enjoyment from committing burglaries than they do at their legitimate jobs (Rengert 1989, Allen 1996). Conversely, it has been argued that high rates of unemployment would mean that there are more people at home to act as deterrents to potential burglars, and that the greater the unemployment rates, the lower the incomes of potential victims, hence the lower the value of goods that could potentially be stolen (Allen 1996).

Another instance where economic factors may contribute to crime is when an individual is a member of a lower social class. They may not earn enough money by legitimate means to succeed in society so they may have to turn to committing burglaries to make ends meet. It may also be the case that they are jealous of the possessions that a member of a higher social class owns, so instead of earning the money to buy those possessions themselves the individual will just steal them (Johnston 1986).

2.5.3 Evaluations of Structuralist Approaches

Structuralism presents many valid explanations for the occurrence of crime, and burglary within urban areas. The most significant are deprivation, location and unemployment. However, structuralism is problematic as it treats people as passive victims of capitalist economic structures (Hall 2001). One problem with the way structuralist theory attempts to explain crime, is that it does not answer the question of why members of a social class victimise members of the same social class (Cater and Jones 1989). The reason it does not is largely due to lack of consideration of individual characteristics of people within society such as their age, gender and ethnicity, but it does provide an adequate explanation of the occurrence of crime between different social groups (Knox and Pinch 2000). Structuralist theory will provide a basis for the research into burglary in this thesis. Unemployment will be one of the socio-demographic characteristics of offenders who will be examined to achieve research objective two. In addition, research objectives one and three will consider levels of deprivation which is a concept directly related to structuralist theory especially in relation to the urban underclass.

2.6 Conclusions

This chapter has described the approaches that have been used by geographers and social scientists to study crime, and has illustrated how they have been many and varied. Each of the approaches described above has made a considerable contribution to the study of the geography of burglary. In order to achieve all three research objectives, this thesis will attempt to amalgamate aspects of all of the approaches. The combination will also provide a comprehensive approach to the study of burglary in Christchurch. Following on from burglars and the burglary event, Chapter Three will discuss the impact of the burglary event on individuals and communities.

Chapter Three: Impacts of and Responses to Residential Burglary

Primary crime prevention has turned to theories of the crime event, rather than of the motivated offender, for its inspiration (Pease 1994: 662)

3.1: Introduction

There are many impacts of, and responses to residential burglary which can be identified at the individual and community level and at the national and international level, that are related to research objectives one and three. Individual and community impacts of burglary can take the form of fear of burglary, which is also directly affected by repeat victimisation. To combat the fear of burglary and repeat victimisation many courses of action can be taken, such as target hardening or encouraging crime prevention through environmental design (CPTED) or creating defensible space. Other less invasive methods of responding to burglary can be combined with the methods mentioned above, such as improving the characteristics of the neighbourhoods, possibly with the implementation of a Neighbourhood Watch Group. The discussion of these methods relates to research objective three which is aimed at exploring the characteristics of burgled and non-burgled properties. International responses to residential burglary are also important, and their effectiveness can be measured through the analysis of clear-up rates. This is related to research objective one which in part aims to identify the spatial and temporal distributions of clear-up rates. The responses of government agencies to burglary include developing initiatives that aid in a more structured policing strategy. These initiatives often involve the inclusion of more than one strategy, such as the promotion of Neighbourhood Watch groups in areas where burglary rates are the highest, in conjunction with increased police presence or target hardening schemes. Insights into the methods of reducing burglaries is related to research objective three, which is aimed at identifying the differences in characteristics between burgled and non-burgled properties in Christchurch.

3.2: Individual and Community Responses

3.2.1: Fear of Burglary

Fear is a very significant individual response to either the occurrence of burglary or the assumed threat of burglary. The increase in burglary rates has consequently increased fear of burglary (Harries 2003). Fear is an important response because it can impact on the adequacy of security measures used to secure individuals' properties and the extent to which they behave in a security conscious manner. Thus, fear of burglary can impact on the

chances of individuals actually being burgled. Fear of burglary is often not consistent with an individual's or community's likelihood of being burgled.

In some cases, fear of burglary is often unprecedented because burglary is often perceived as a much more serious problem than it actually is (Davidson 1979). An individual's behaviour can be affected as much by fear of burglary as it can be affected by actual victimisation of burglary (Cater and Jones 1989). Fear of burglary can evolve from personal experience, from the experiences of people close to them or even through the media (Rountree and Land 1996, Romer et al 2003). For example, the more burglary occurs and is publicised then the more likely some people are to think burglary will happen to them because it appears more common. Additionally, if someone close to an individual experiences a burglary then the individual becomes more aware of burglaries, and more likely to change their behaviour accordingly.

Fear of burglary can be related to ethnicity, age and location. In Britain, it was found that Asians and Afro-Caribbeans had a higher fear of burglary than other ethnicities (Evans 1999). Rountree and Land (1996) found European people and young people have a greater fear of burglary, however, they found no specific gender differences relating to fear of burglary. People living in high burglary areas have been found more likely to fear burglary (Cater and Jones 1989, Pain 2000). In 1988, the British Crime Survey (BCS) found that 60% of Neighbourhood Watch members were fearful of being burglary victims compared to just 55% of Non-Neighbourhood Watch members. This difference may be due to the possibility that the greater exposure a person has to the possibilities of a burglary happening, the more likely they are to be fearful of burglaries (Zedner 1994). Fear of burglary can also be related to how well an individual perceives the area to be policed (Johnston 2001), which can be helped by increasing the community watch patrols or developing Neighbourhood Watch groups (Evans 1999).

Fear of burglary has some cyclic properties, as it can lead people to fence themselves off from their communities, decreasing the levels of interaction in neighbourhoods, which could lead to increased burglary rates (Doeksen 1997). The reason this behaviour can

increase burglary rates is because when people close themselves off, they do not know who their neighbours are, which means they can not distinguish between neighbours and possible offenders, in turn increasing the fear of burglary. Thus, fear of burglary can be decreased by increasing surveillability. In order to minimise burglary, people need to reclaim their neighbourhoods by improving interaction with neighbours and decreasing separation between properties and the street (Doeksen 1997).

3.2.2: Repeat Victimization

Fear of burglary can be exacerbated by repeat victimisation. Repeat victims of burglary are victims who have been affected by burglary more than once, usually within a short period. In the case of repeat victimisation, victims can be an individual or the house in which they live, as both are important with respect to the causes of repeat victimisation. Usually repeat victimisation is committed by the same offender, but in some cases, the offender informs colleagues of the property and these colleagues victimise the property. In addition to the offenders' motivations for repeat offending, there are many ways in which victims can expose themselves to be repeatedly victimised; for example, when the victim does not take adequate precautions, such target hardening, after their first burglary.

Repeat victimisation is a significant problem as studies have shown that a house which has been burgled once is four times more likely to be burgled again than a house that has not been burgled (Shaw and Pease 2000). To that end, the 2000 British Crime Survey stated that 1% of households in Britain suffered 42% of the burglaries (Crime Reduction UK 2003). Generally, repeat victims only suffer one additional victimisation after the original victimisation. For example, Johnson et al (1997) found that in Merseyside, Britain, 85% of repeat victims only suffered one additional victimisation. Statistically repeat victims of burglary are more likely to be people living with flatmates, in a rented property, on a benefit, or a student, and they are most likely to be young and Maori (Morris and Reilly 2003).

Repeat victimisation can be the result of a variety of circumstances. For example, the more recent the last burglary was, the less likely it is that the entry point used last time has been

re-secured, thus making entry to the house by the offender very easy, therefore reducing the risks of victimising the property for the offender. The offender would also be more familiar with any hidden security measures (such as dogs) or unadvertised security alarms. They would also be more aware of an easy escape route than if they chose a property they had not previously victimised (Farrell et al 1995). Additional reasons for the offender returning include that the offender did not steal everything they could have, so they either return alone or in groups to complete the burglary, or if enough time had elapsed the victim may have purchased replacement items making it worthwhile for the offender to return (Polvi et al 1991, Farrell et al 1995). In some cases, the offender may not return themselves, which is usually the case if the burglar perceives the house to be high risk after the first instance of burgling the address. However, the offender may inform other burglars about the value of goods to be stolen from the property, which still contribute to the process of revictimisation (Polvi et al 1991, Shaw and Pease 2000).

In addition to the motivations of the offender, studies have shown that repeat victimisation is also strongly influenced by the behaviours of the victims. For example, in New Zealand, 14% of repeat victims had no special security measures in place, which compares with 8% of people who had been victimised once and 9% of those who had never been victimised illustrating how repeat victimisation can be affected by security measures (Morris and Reilly 2003). The absence of target hardening techniques by victims was also one of the reasons provided by Polvi et al (1991) for the occurrence of repeat victimisation.

Often it is not the repeat victimisation of a single property that can be a problem, sometimes whole neighbourhoods are repeatedly victimised. When this happens, it is known as 'near-repeats', which is when properties are burgled because they are close in proximity to 'infected' houses, houses that have been recently victimised. It has been suggested that the reasons properties in close proximity to one another are burgled could be related to the way in which offenders choose their targets. An example of a near-repeat is, for instance, when a house on the left side of the street is broken into then it is most likely that the next house broken into on that street will be on the left side (Bowers et al 1998, Shaw and Pease 2000, Townsley et al 2003).

Repeat victimisation is a common occurrence, thus some cities have developed methods to reduce the incidence of repeat victimisation. For example in Tasmania, Australia, a programme to try and combat the extensive problem of repeat victimisation was developed. This programme was called 'Project Samaritan' and was developed in 1998 (Goodwin 2002). 'Project Samaritan' proved successful in decreasing the incidence of repeat victimisation. However, it did not eradicate the problem altogether (Goodwin 2002). The method employed in this programme had been target hardening, which was effective because previously there was very little focus on crime prevention in Tasmania. Additionally, highly deprived areas of cities have been found to have higher rates of repeat victimisation (Johnson et al 1997). Thus when the areas where excessive repeat victimisation occurs are known, it can be more proactively prevented, by increasing police patrols and increasing public awareness about more effective security measures that can be implemented around their houses (Johnson et al 1997, Shaw and Pease 2000).

3.2.3: Deterring Offenders and Preventing Burglaries

On the individual and community level scale are many methods to reduce the incidence of burglaries, which in turn reduces fear of burglary and repeat victimisation. The methods can be classified as target hardening, CPTED, defensible space and techniques that can be used to reduce burglaries in whole neighbourhoods. Deterring offenders is achieved by increasing the 'costs' for the offender which can be achieved through capable property guardianship which means creating defensible space (physical and social guardianship), target hardening (physical guardianship) or creating a greater sense of community in neighbourhoods (Miethe and Meier 1994). These responses to burglary operate on the theory that by altering the characteristics of the targets, burglary will be prevented. This section will provide a discussion of the literature that relates to research objective three, which aims to examine the characteristics of burgled and non-burgled properties

3.2.3.1: Target Hardening

Offenders can be deterred from offending at specific properties by reducing the attractiveness of the target by making it harder to get into. This target hardening can be

achieved by the improvement of security measures on the property. The erection of fences or alteration of the heights of fences that were already present is also considered target hardening. Additionally, increasing the security of a house by target hardening could be achieved by removing spare keys hidden around the property.

In order to most successfully target harden it is important to identify which entry points are the most problematic. In New Zealand, the most common mode of entry is the window (53%) or the door (45%) (Field 1989, Morris and Reilly 2003). The door was also the most common entry point used in the United Kingdom as 71% of offenders entered a property through the door (Home Office 2004). Installing locks and stays to windows and doors makes the property harder for the offender to enter. Target hardening can also be achieved by installing a security alarm or improving locks (Bennett 1989, Wright and Decker 1994, Hughes 1998). Although security alarms have been found to have a marked effect on the reduction of the risk of burglary, some offenders are able to disarm them (Cromwell et al 1991). Property marking is another method of target hardening, as is increasing occupancy indicators, such having vehicles parked in the driveway (Weisel 2002). Other methods of target hardening include owning a dog which reduces the likelihood, if properly advertised, of an offender entering the property. For instance, from a potential burglar's perspective:

Three reasons were offered for avoiding dogs: the most frequent reason was that dogs might bark and alert either the occupants or the neighbours; the second reason was the fear of being attacked by the dog; and the third was being placed in a situation in which it might be necessary to harm the animal (Bennett 1989: 189).

Fences are also an effective means of target hardening. To be their most effective it has been suggested that fences between a property and the street should be solid and no more than 1 meter high, which allows people to see over the fence easily, to notice anything suspicious yet still defines the property (Coleman 1985, Wekerle and Whitzman 1995, Doeksen 1997).

Target hardening effectively reduces burglaries in the areas where it is implemented, but it is thought that it may not reduce citywide burglary rates. The reason the citywide burglary rate may not decrease is because the offenders may travel elsewhere to commit their burglaries, such as places where the residents have not adequately target hardened their property. Thus, the properties in those areas would be easier to enter making them more attractive to offenders (Meithe and Meier 1994, Smith et al 2003).

3.2.3.2: CPTED (Crime Prevention through Environmental Design) and Defensible Space

Similar to target hardening, CPTED is principally concerned with decreasing burglary. The theory behind CPTED is that burglary can be reduced through manipulating the characteristics of environmental design. CPTED can be achieved by various methods, for instance, by removing shrubbery from entry points and reducing the places for offenders to hide. Defensible space is a concept very closely related to CPTED which involves changing not just the physical characteristics of properties, as CPTED does, but also by changing the physical characteristics of entire neighbourhoods. The reason defensible space involves changing entire neighbourhoods is because certain physical features of neighbourhoods can increase the risk of burglary.

There are many ways of decreasing burglaries through environmental design. Some of the ways to decrease burglaries include implementing the following: improving street lighting, increasing lighting in doorways and pruning shrubbery from around windows and doors so that it does not provide cover for offenders (Doeksen et al 1996). The reason these methods of decreasing burglaries are effective is that burglars feel more vulnerable to observation if they can be seen from the street, either by having no shrubbery or fences to shield them from public view. CPTED is concerned solely with how the environment causes an individual's behaviour (Wekerle and Whitzman 1995, Doeksen et al 1996).

Newman (1973) published a book on his studies into defensible space in America and how to create defensible space areas around apartments and council estates. These ideas have

been transferred to other countries. For example, Coleman (1985), in England, found that there are three principles that increase the likelihood of burglary and underpin the concept of defensible space: lack of surveillance, anonymity and presence of alternative escape routes. Anonymity refers to how likely it is for a person who does not live in a neighbourhood to blend in. The level of anonymity can be related to how busy a neighbourhood is, as busy streets provide greater anonymity. It has been found that quiet streets have lower burglary rates (Greenberg & Rohe 1984, Doeksen 1997, Robinson 1997, Knowles 2003, Ratcliffe 2003). In addition, the position of the house on the street can be important in assessing the risk of burglary, for example studies have shown that houses on the corners of streets are more likely to be burgled than those centrally placed along the street (Hakim et al 2000).

Surveillance relates to both how visible the street is from a property and how visible the property is from the street and by neighbours. The greater the surveillability the less likely it is that a property will be burgled (Coleman 1985, Cromwell et al 1991, Ham-Rowbottom et al 1999, Robinson 1997). The reason that surveillability is important is because the burglar will be more likely to be observed offending. The presence of alternative escape routes relates to whether or not a property has an alleyway beside it or a park, or large open space behind it, which can increase the risk of burglary (Coleman 1985, Doeksen 1997, Evans 1999, Hakim et al 2000).

The presence of shrubbery at the front of properties has been found to increase the risk of burglaries (Evans 1999). The abundance of hiding places has also been found to increase the chance of burglary (Robinson 1997). The distance of a house from the street is considered to influence the risk of burglary. The closer the house is to the street the more likely an offender will be seen attempting to break in, hence the less likely it is to be burgled (Coleman 1985, Bennett 1989). Additionally, the presence of graffiti in an area has been linked to high levels of burglary (Coleman 1985).

3.2.3.3: Neighbourhood Characteristics

In addition to the methods individuals can use to prevent burglaries on their properties, there are methods that communities as a whole can use to reduce burglary in their neighbourhood. These methods may include increasing the sense of community within an area, or improving communication between neighbours in order to improve their sense of ownership within their neighbourhood. This interaction within neighbourhoods and communities is sometimes known as social capital or social cohesion. These concepts are closely linked to the ideas discussed in the section describing CPTED and defensible space. One of the assumptions of defensible space is that urban design could encourage greater community cohesion and so help control burglary (Meithe and Meier 1994).

Social interaction between neighbours is an effective means of developing social capital or social cohesion, and the more frequent this interaction the higher the level of social capital or social cohesion (Bellair 1997, Hirschfield and Bowers 1997, Graycar 1999, Lindstrom 2003). Social interaction can be particularly effective in reducing burglary in low-income housing as it helps provide a sense of shared responsibility, and makes it more likely that everyone will care about their neighbourhood and community (Saegert et al 2002).

Neighbourhoods with greater levels of social cohesion are more likely to partake in neighbourhood surveillance (a key concept of defensible space) by being aware of any suspicious people in the area (Bellair 1997). Essentially, building social capital means bringing communities together and creating a sense of collective responsibility for the safety of the neighbourhood.

Implementing and promoting Neighbourhood Watch or Neighbourhood Support groups is one of the main methods for improving social interaction in communities. Neighbourhood Watch and Support schemes have become increasingly popular since the 1970s. Such schemes have been seen to improve community communication, wellbeing and strength (Doeksen 1997). Neighbourhood Watch and Support groups are promoted internationally, for example United Kingdom the Home Office, has a training manual for Neighbourhood Support Groups on its website. The majority of evaluations regarding the effectiveness of

Neighbourhood Watch schemes in Britain and the United States have been conducted by the police departments that have been involved in setting up and implementing the schemes. These evaluations have shown positive results, in that the higher the level of participation in a Neighbourhood Watch scheme in an area, the lower the rate of burglary in that area (Bennett 1989). Furthermore, Goodwin (2002) found that after talking to imprisoned burglars the most effective form of security measures were Neighbourhood Watch groups. However even though Neighbourhood Watch schemes may reduce the rate of burglary in an area, they may not reduce the fear of burglary or fear of victimisation from burglary (Bennett 1989).

3.3: Structural Responses

3.3.1: Clear-Up Rates

Clear-up rates are extremely important in enabling analysis of the effectiveness of current or past police initiatives and government policies. The spatial and temporal distribution of burglary clear-up rates across a city can illustrate the areas where police currently are or have been focussing their attention, and the areas that may require more attention. Unfortunately, burglary clear-up rates are generally quite low with approximately only one third of residential burglaries being cleared-up. The discussion of the literature relating to clear-up rates will provide background information needed to achieve research objective one.

Temporally burglary clear-up rates have remained fairly consistent. For example, the variation in the burglary clear-up rates over a 10-year period, from 1969 to 1978, throughout England and Wales was only 6% (from 31% to 37%) (Bottomley and Coleman 1981). Since then the burglary clear-up rate has decreased in England and Wales. For example, in 1985 only 29% of burglaries were cleared up (Burrows and Tarling 1987). The clear-up rate for England and Wales decreased further to 20% in 1992 (Evans 1999).

New Zealand has a comparatively low clear-up rate when compared internationally. For example, the clear-up rate has remained constant at around 12% from 1994 to 1999, the rate

did increase though, to 16% in the year 2000 (Statistics New Zealand 2003). The clear-up rates for Christchurch are also quite low. They also show an overall increase in the rates of burglaries that are cleared up (Figure 3.1). Davidson (1980) found that in Christchurch the clear-up rates were not related to deprivation levels nor to spatially concentrated in specific areas.

Figure 3.1: Residential Burglary Clear-Up Rates for years ending 30 June for Christchurch (Police Commissioner 2004: 26)

Financial Year	Clear-Up Rate
1998/1999	11.5%
1999/2000	11.8%
2000/2001	16.9%
2001/2002	12.4%
2002/2003	15.0%
2003/2004	15.7%

The main reasons offenders are apprehended is due to the lack of planning time invested in the burglary, or if they commit a burglary under the influence of alcohol or drugs (as these substances reduce the capacity for rational thinking). Generally, the more opportunistic offenders are apprehended, as less thought is put into the burglary. Professional experienced offenders are also apprehended, often due to the police record that they built up as amateurs (Rengert and Wasilchick 1985). The main ways in which police are able to apprehend offenders are: when the offenders are caught in the act, when the offender is identified by neighbours, when the offender is identified by occupants, which is often because they knew occupants. Alternatively, they are apprehended because the person they co-offended with informs the police of their identity (Bottomley and Coleman 1981, Wright and Decker 1994, Jones 1996). Additionally the clear-up rate is affected by an offender admitting to further burglaries after being arrested (Cater and Jones 1989).

3.3.2: International Policies

Crime prevention is achievable through two methods. The first is based around situational crime prevention such as target hardening and creating defensible space which can be

specifically related to burglaries. Situational crime prevention is a worldwide crime reduction technique (Evans 1999). The second method deals with the causes of burglary such as unemployment and lack of education. It is thought that after the introduction of many of the burglary reduction schemes the reported rate of burglary will increase. This increase would be because people are more likely to think that reporting a burglary may do some good and that there may be a chance of apprehending the offender (Brantingham and Brantingham 1984). The description of international policies can identify how other countries attempt to reduce burglary and increase clear-up. Therefore, this section is related to research objectives one and three.

Situational crime prevention is one of the fastest growing and most common techniques internationally. This method of crime prevention relates well to most of the positivist theories especially rational choice theory and opportunity theory as it deals with risk management, and reducing opportunities for burglary (Hughes 1998). The methods involved in situational crime prevention include target hardening which involves making it harder for the offender to enter the targeted house. Another very popular method of policing is community based policing such as promoting Neighbourhood Watch groups and increasing police patrols in at risk areas (Brantingham and Brantingham 1984). Although it is thought implementing Neighbourhood Watch schemes will decrease the overall burglary rates, currently the effects of Neighbourhood Watch schemes on burglary rates are relatively unknown (Evans 1999). There are many additional ways in which police could reduce burglaries; for instance, they can increase police numbers, they could bring in tougher laws to punish offenders, they could adopt harsher sentencing or they could introduce urban boot camps for at-risk youths (Wekerle and Whitzman 1995). Programmes helping youths and their families have been found to be very effective in the reduction of offenders. For example, there are schemes aimed at reducing offending and the anti-social behaviours of children (Farrington and Welsh 2003). These schemes combine parent training, school interventions and community programmes to provide a well rounded way of treating and helping youths at risk of offending.

England has developed many crime prevention and reduction programmes particularly in the 1980s and 1990s. In the past 15 years, there has been a shift to incorporate the community as a whole in the fight against burglary, for example, the 'Safer Cities Scheme' which was implemented in 1988 (Ekholm et al 1996, Evans 1999). The main aims of this scheme are situational crime prevention, which aims to first improve the physical security of dwellings, and then to attempt to improve people's vigilance in reporting, and noticing burglary in their neighbourhood. These schemes have been successful in the reduction of burglary (Ekholm et al 1996).

Similar to the 'Safer Cities Scheme' the 'Reducing Burglary Initiative' was developed. The scheme was aimed at helping the most at-risk populations in England such as students and over 60 year olds (Curtin et al 2001). This initiative sets up objectives to be achieved each year, and it developed milestones to be achieved through out the year. These objectives were different for each area of England. The objectives include methods such as setting up Neighbourhood Watch groups, 'market reduction' which involves reducing the market in which stolen goods can be sold, or increasing the difficulty of gaining entry to properties (Curtin et al 2001).

Another scheme that was implemented involved investing more time with at-risk youths in Manchester, England. It is important to invest time in at-risk youths because youths are put at risk of offending for a large number of reasons, which can be overcome by councillors working with the youths; hence Youth Offending Teams have been implemented, in order to combat the risk factors affecting youths (Youth Justice Trust 2003). The youths who are targeted and who offend are generally from areas with low social capital, also the youths who are arrested perceive they were a failure at school. These factors if dealt with could be reduced through intervention (Youth Justice Trust 2003). The aim is to work with the youths, their families and schools to reduce the causes that can lead young people to crime.

In order to reduce burglary in America situational and community based crime prevention schemes were adopted (Hughes 1998). For example, in the 1960s the Federal US Justice Department funded the Community Watch volunteer patrols. However, the patrols are no

longer funded and the majority of the patrols do not exist, although some communities have picked up costs and the patrols are still operating (Sherman 1983). As in England, preventative programmes were developed in America to help delinquent youths which is because much delinquent behaviour becomes apparent when individuals are teenagers, thus making it more appropriate to work with them as adolescents in order to attempt to change their behaviour (Engel and Hurrelmann 1988)

The burglary reduction schemes in Australia are also very similar to those in England and America. An example of one of the schemes is in Canberra, Australia, where the rising burglary rates were met with a crime reduction strategy called ‘Operation Anchorage’ conducted in February 2001 (Ratcliffe 2001b). ‘Operation Anchorage’ was focussed at targeting the worst affected areas and the recidivist offenders. This was achieved via the surveillance of known offenders and intelligence about known offenders. The initial results showed a marked affect on recorded burglary rates; however, the results were thought only to be effective for the short term. It was suggested that any reduction in burglary rates would not be long-term (Ratcliffe 2001b).

3.3.3: New Zealand Government Initiatives

The New Zealand Government has adopted several initiatives to reduce burglary. Many of the New Zealand initiatives are similar to international burglary reduction initiatives. The initiatives include working with people at risk of offending, adopting community and situational crime prevention programmes and implementing a police task force directly aimed at targeting burglaries. In 1994, the New Zealand Government developed a ‘Crime Prevention Strategy’. The main aim of the strategy was to ‘enhance community safety and security through crime prevention’ (Department of the Prime Minister and Cabinet 1994). This aim was to be achieved through targeting and supporting “at risk” families and youths, and increasing the profile of community policing. As with the international policies and initiatives, this section is also related to research objectives one and three.

In order to target and support “at-risk” families and youths, New Zealand now has 14 community youth projects that are the responsibility of the New Zealand Police and the

Crime Prevention Unit. Throughout the country, these community youth projects are aimed at working with youths to reduce their likelihood of offending. The projects are present in many of the high-risk areas of NZ such as Christchurch, Hastings, Northland, Counties Manukau, and Auckland City (Crime Prevention Unit 2003). The aim is to work with recidivist young offenders and their families to reduce causes that lead to offending, such as drug and alcohol use and lack of education.

Additionally, the New Zealand Ministry of Justice has developed a target hardening programme, and tested it in Auckland from April 2001 to July 2002 on 167 properties (Casey et al 2004). The focus of the Target Hardening Programme (THP) was to provide increased security and information on security for the houses of individuals in lower socio-economic areas that had been victimised by burglary twice or more within a year. The security measures installed were; new locks for windows and doors, the loan of an audible security alarm, the installation of security screens and new lighting. The results of the study showed that over half of the houses that were actually victimised during the THP were due to failure of participants to use the security equipment, which was due to human error, not the failure of improved security (Casey et al 2004). The THP was also found to reduce the fear of burglary and increase the feeling of security that the occupants felt in their houses. The participants were also found to be more aware of the need for increased security as a result of taking part in the study.

3.3.4: New Zealand Policing Strategies

In addition to the Government's burglary reduction policies, the New Zealand Police Department have developed further strategies to combat burglaries. The strategies employed by the police to reduce burglaries are very much based around informing people of the methods of reducing the risks of burglaries. The strategies include target hardening, creating defensible space, and promoting Neighbourhood Watch groups and community based policing. It may also involve increasing police patrols in problem areas.

As the number of burglaries being committed each week is so high, in Christchurch approximately 120 burglaries are committed each week (New Zealand Police 2004), it is

impossible to apprehend all the offenders. Thus, in an attempt to reduce burglary rates, the focus of international police departments, which has been adopted in New Zealand, has been to educate the public about the ways to better protect their homes from burglaries (Rengert and Wasilchick 1985). To educate the public, the New Zealand Police website includes a section on how to protect houses against burglary, why security alarms are important, and what to do if the house is left unoccupied for long periods of time.

In New Zealand, in 1993, the Burglary Response Unit/Break Squad was reintroduced to the New Zealand Police Department to combat rising residential burglary rates. The main aims of the Burglary Response Unit were to target recidivist offenders, also to more effectively use community policing approaches, such as Neighbourhood Support Groups, Neighbourhood Watch Groups and Community Watch patrols, and using the available technology to their advantage (New Zealand Police Corporate Plan 1993/94). A study by Prosser (1996) found the reintroduction of this squad to be effective in the reduction of burglaries in Christchurch.

3.4: Conclusions

This chapter has discussed literature regarding the impacts of and responses to residential burglary, which provides a background that is needed to achieve research objectives one and three. In summary, fear of burglary is a major response to and impact of the crime. It can alter an individual's behaviours and in some cases decrease their chances of actual victimisation. Fear of burglary can be influenced by repeat victimisation, as people who are repeatedly victimised may become increasingly fearful of burglary. Repeat victimisation occurs for many reasons, including the motivations of the offender and the behaviours of the victim. There are many ways that individuals and communities can reduce the chance of being burgled, including target hardening, creating defensible space, promoting crime prevention through environmental design, and developing the feelings of community in neighbourhoods. Clear-up rates can provide a basis for analysis of how effective police initiatives are, and they can provide an illustration of which areas need more attention. Many of the international and national burglary reduction schemes are similar. They are structured around concepts such as situational crime prevention, for example target

hardening and creating defensible space. The also involve community based crime prevention, including implementing Neighbourhood Watch groups, and increasing police patrols. Additionally, reducing the number of youths at risk of offending is an important scheme which is adopted in the UK, the US and New Zealand. The literature discussed in this Chapter relates to all research objectives and Chapter Four will discuss the methodology used to achieve each of them.

Chapter Four: Methodology

4.1: Introduction

This chapter will describe the methodology used to achieve the three research objectives outlined in Chapter One. The objectives are based around the temporal and spatial analysis of both burglars and burglaries in Christchurch, New Zealand, between the years 1998 and 2003. Both qualitative and quantitative methods of analysis were used in this research. The reason for using a mixed method approach was because it enabled a more comprehensive analysis of the data. The quantitative methods used reflect the positivist, the behaviouralist and the structuralist approaches to urban geography. They involve replicable empirical analysis of the data. Spatial, temporal and statistical analysis of the data set was involved in the quantitative analysis. The qualitative approaches used relate to the humanistic approaches of urban geography. This analysis is notable for its subjective nature; it identifies the fact that the researcher brings a certain amount of unique feelings and emotions that influence the analysis making the results individual.

4.2: Data Sources Used

4.2.1: Police Records

Two types of police records data were used in this research. The first was primary data in the form of digital database data directly from the police computer. The database contained the recorded burglaries for Metropolitan Christchurch for five-year study period (1998/1999 to 2002/2003) (Figure 4.1). The following fields were contained in the database; xy co-ordinates for each of the recorded residential burglaries, the physical addresses of each burglary event, the suburb, the time and the date that each burglary was recorded. The database also contained a field that gave each reported burglary a unique identifier; this was in the form of an event number that had been given to the burglary event.

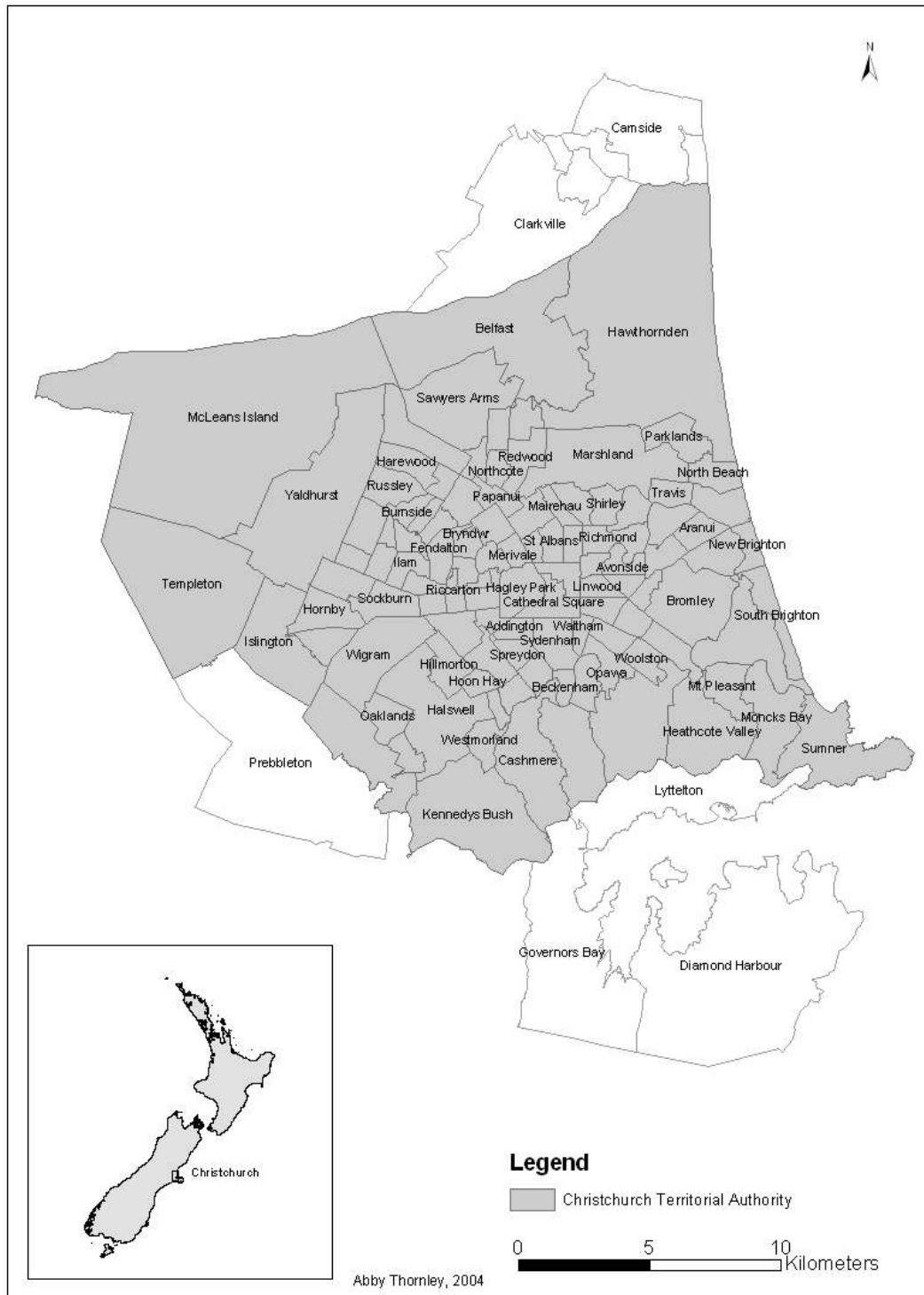


Figure 4.1: Location Map Showing the Area Covered by the Christchurch Territorial Authority

The second type of police data used in this research were the hardcopy records for the residential burglaries where the offender was apprehended and prosecuted. These records covered the period 2001 to 2003. The information gathered from these records pertained to the offender and the burglary event. More specifically, they contained information concerning the offender's address, gender, age, ethnicity, and occupation. There was also information regarding the type and value of the items stolen, the method of entry the offender used, whether the offender knew the victims, and whether the offender was disturbed for each burglary. Not all of the hardcopy files that were examined contained the required information. Therefore, the data compiled was not comprehensive for the files located. In total, characteristics regarding 857 burglars were analysed. This data was then manually entered into a database in order for it to be analysed. The demographic characteristics of the offenders, contained in the police records, such as gender, age, and ethnicity are important because they allow inferences to be made (Beki et al 1999).

4.2.2: Evaluations of the Police Data

The number of burglaries and number of burglaries cleared up in this study, for Christchurch, are different to those reported by the Police Commissioner (2004), for Canterbury. The number of reported burglaries for Canterbury was smaller than they were for Christchurch. For example, the number of reported burglaries was 6,462 for 1998/1999, whereas, the Police Commissioner's (2004) figure was 5,160 for the same year. In 2002/2003, the number of reported burglaries was 6,020 and the Police Commissioner's (2004) reported the number was 4,369. There are two main explanations for the differences. Primarily, the areas are different in size and type, for instance, Christchurch is smaller, has a smaller population and is predominantly urban. In comparison, Canterbury is larger with a larger population and is both rural and urban. Secondly, there are differences in the data used in this thesis compared to the police report. For example, the number of reported burglaries in this thesis incorporated all of the phone reports of burglaries to the police call centre. Some of the phone reported burglaries may have later been termed a 'no-crime' meaning that after investigation, the police may have thought that no burglary actually took place at the address. Alternatively, after investigation it may be that a crime other than a burglary was committed, thus, reducing the reported burglary figure.

The difference between the numbers reported by the police and those reported in this study was also apparent from the clear-up rates. The clear-up rates were higher in the Police Commissioner's (2004) report than they were for the Christchurch data reported in Chapter Five. For example in this study, the clear-up rate in 2001 was 3.4%, whereas the Police Commissioner (2004) reported the clear-up rate as 17% for the same year. In 2003, the clear-up rate was 3.5%, while the Police Commissioner (2004) stated the clear-up rate as 15%. One reason for the difference could be that the number of reported burglaries in this study was larger than the reported burglaries in the Police Commissioner's (2004) report (as previously noted). In addition, the number of cleared up burglaries was also lower than reported by the police, for example in 2001, the number cleared up was 215, and in the police report the number was 751. In 2003, the number cleared-up in this study was 224, whereas the police reported the number cleared up as 657 for the same year. One reason for this disparity could be that not all of the files where the burglaries were cleared-up were used in the formulation of the above results. The reason not all of the files were included was because not all of the files could be located, and the cleared up files used were only for the cases where apprehension of the offender resulted in prosecution. Thus, many of the young offenders were not included because the usual course of action is family group conference not prosecution.

4.2.3: Socio-Demographic Data

In order to thoroughly analyse the police data, it was necessary to incorporate secondary data from the 2001 New Zealand Census. The data specifically used was the meshblocks and Census Area Units (CAU) for the Christchurch Territorial Authority, and the discrete and continuous NZDep 2001 deciles and populations for the Christchurch meshblock and CAU. Meshblocks are spatially referenced area units for aggregate census data. In the Christchurch Territorial Authority, there are 3119 meshblocks that represent 316,227 people. CAU are also spatially referenced area units that contain the same information as meshblocks, however, at a coarser resolution. In this research, the meshblocks were used to relate the NZDep 2001 Deciles to the police data described above. The NZDep 2001 Deciles assign each area in New Zealand a deprivation decile from 1-10. Deprivation decile

10 represents a very disadvantaged area or suburb and deprivation decile one represents a very privileged area or suburb of New Zealand. Other census information for Christchurch was used in analysis, the other information included gender, ethnic group and age. Unfortunately some of the Christchurch meshblocks had populations of less than six individuals which meant the populations for those meshblocks were suppressed, therefore, in order to better analyse the data 161 meshblocks were excluded along with the burglary events that occurred in those meshblocks: in 1998/1999 451 out of 6913 burglary events were excluded. In 1999/2000 389 out of 7513 burglary events were excluded, in 2000/2001 396 out of 6336 burglary events were excluded, in 2001/2002 468 out of 6836 burglary events were excluded, and in 2002/2003 432 out of 6458 burglary events were excluded. The resulting population that was used for Christchurch from the 2001 Census was 321,498 people.

4.3: Crime Reporting

Due to fact that police record data are a major primary data source in this research it is useful to discuss the factors affecting the reporting of burglaries. It is important to address this issue because police data for burglaries are not comprehensive and, there will always be a certain number of burglaries that remain unreported. The difference in reported burglaries to actual burglary incidents can never be known (Brantingham and Brantingham 1984). Fortunately, for this research, residential burglary has a high reporting rate in comparison to other crime types such as domestic violence (Evans 1999). Usually the reporting rate of residential burglaries to the police is quite high, due to the fact that a burglary has to be reported in order to make an insurance claim. Additionally, burglary reporting rates have increased in the past twenty years (Jones 1996). However, the changing behaviours in crime reporting by victims can greatly influence reported burglary rates. Large increases or decreases in burglary rates may be due to changes in police administration techniques, for example, after a change in police administration in New York City in 1950, recorded burglaries rose more than 1300 percent on the 1949 burglary figure (Brantingham and Brantingham 1984).

There are many reasons for the non-reporting of burglaries. For instance, in some cases it may be difficult to establish the number of burglary incidents that have occurred at a residence. The reason for this difficulty is that burglaries often occur if occupants are absent from their residences, and if a residence is burgled more than once it can be hard to determine how many times a burglary has occurred. Therefore, in some cases, while one burglary may be reported, numerous burglaries may have taken place. Another, less common, occurrence that is problematic is when a burglar breaks into a residence, while the occupant is not home, with the intent to steal an item, which by definition is committing a burglary, then decides against it and leaves again without anyone knowing. In this case, a burglary would have occurred but only the burglar would know it (Brantingham and Brantingham 1984).

Other factors which have influenced the reporting of burglaries include; the seriousness of the burglary, gender and social class of the victim (Evans 1999). For example, female burglary victims are more likely than male victims to report a burglary. It has also been found that victims in a higher social class are more likely to report burglaries (Evans 1999, Evans 1989). However, other factors such as age of the victim and opinion regarding the police or the ethnicity of the victim show no clear relationship with the likelihood of reporting a burglary event (Evans 1999).

In addition to the factors affecting the reporting of burglaries, there are many situations that would result in non-reporting of burglaries. Some of these situations include when the victim considers the incident too trivial, or assumes the police would be unable to assist. In some instances, it could also be inconvenient, time-wise, for the victim to report a burglary especially if nothing was taken. Other situations that would result in a burglary not being reported could include when the offender is a friend or relative of the victim or when the victims themselves are criminals (Brantingham and Brantingham 1984). Even if a burglary is reported, there is a chance it may be termed a 'no-crime' (Bottomley and Coleman 1981). Some reasons for a burglary being termed a 'no-crime' could include that the person who reported it has decided that no burglary actually took place or if the police decide that no burglary took place (Bottomley and Coleman 1981). A study in Birmingham showed that

5% of property crimes, such as burglary, were written off by the police as ‘no-crimes’ (Lambert 1970).

4.4: Quantitative Approaches Used

4.4.1: Spatial and Temporal Analysis

This research used GIS software to aid in the spatial and temporal analysis of the burglary and socio-demographic data. The use of Geographic Information Systems (GIS) is an especially useful tool in the study of burglary, because burglary is a spatial phenomenon and a GIS analyses data spatially. One major benefit of using GIS, is that it can integrate data from many different sources, such as police, census, and deprivation data. When employing the use of GIS software it is important to remember that:

GIS is not just the process whereby a computer program is used to place electronic pins on static electronic maps; it is a tool with many capabilities for analyzing and interacting with the data (Velasco and Boba 2000: 3).

This analysis used the ArcGIS 8 suite of programs to visually represent, manipulate and analyse the data. The spatial and temporal analysis of the police and deprivation data was primarily used to facilitate the achievement of research objectives one and two, which is related to analysing the spatial and temporal distribution of burglaries and burglars in Christchurch.

The use of GIS for displaying the location of crime occurrences is becoming increasingly common (Murray et al 2001) and it used in this research for that purpose. The database burglary data provided by the police was point (node) data in the form of xy co-ordinates, so the degree of error in the geo-coding of the addresses is unknown. The xy co-ordinates were used to create a feature class in Arc Catalog. The police data were then spatially joined, using point in polygon, to the 2001 CAU. The burglary data was then joined to the

NZDep 2001 Deciles by the common field 'CAU ID'. From there the data was exported in database form so further analysis could be conducted using Microsoft Excel and Access. Once this analysis had been completed, the burglary rates in each CAU for 1998 to 2003 were then displayed on choropleth maps, as was the standardized change in burglary rate.

The hardcopy police records contained addresses that were transformed into points (nodes) by looking up the xy co-ordinates in Terraview. The xy co-ordinates were then used to create a feature class with Arc Catalog, and then these points were then spatially joined to the CAU, so they could be related to the NZDep 2001 Deciles by the common field 'CAU ID'. The manipulated data was then exported to a database from which it could be further analysed using Microsoft Excel and Access. Once the data had been further analysed it was imported back into ArcGIS and the clear-up rates in each CAU for 2001, 2002, and 2003 were displayed in choropleth maps, as was the change in clear-up rate.

Using Arc Info the distance travelled to commit a burglary was calculated for each record through the use of a specifically designed macro. The macro measured the straight-line distance between the offender's address (node) and the related burglary victim's address (node) in metres. Once the distances had been calculated they were further analysed using Microsoft Excel and Access. After further analysis, the average distance travelled by the CAU in which the victim lived was displayed on a choropleth map.

The direction and distance the offender travelled was displayed in Arc GIS by the creation of line files. Two line files were created, one from the random sample of twenty of the offenders living in deprivation deciles one, two and three. The other file was created from the random sample of twenty of the offenders in deprivation decile eight, nine and ten. The lines illustrate the direction in which the offender travelled to commit burglaries. The point location of the offender's residence and the point location of the burglary location were created, in conjunction with the line file.

4.4.2: Statistical Analysis

In addition to the spatial and temporal analysis, statistical analysis was conducted on the data using Microsoft Excel and Access. Statistical methodologies were used in the analysis of the burglary and clear-up rates. This analysis involved the calculation of the burglary rate, per 1000 population, for each of the financial years, 1998/1999-2002/2003, which is a very useful way to show temporal change in burglary rates (Brantingham and Brantingham 1984). The clear-up rates were also calculated, as a percent of the burglary events. The clear-up rates were only calculated for the years 2001 to 2003 as the data were only available for these years. For each year, correlations were computed between the burglary and clear-up rates and the deprivation deciles in which they occurred. In order to identify relationships between variables, such as between deprivation and burglary rates, or between clear-up rates and deprivation, the Pearson Correlation was calculated, which produced values between -1 and +1 and the closer the values were to either -1 or +1 the stronger the relationship was. The relationship between the variables was also tested by producing a Scatter-Plot using both variable, for example deprivation and burglary rate, and finding the gradient of the line of best fit between the two variables. In addition, for the clear-up rates the residuals were calculated in order to identify the degree of variation with each deprivation decile. It was also important to analyse the changes in burglary and clear-up rate in each deprivation decile. One of the methods used to analyse the change was to calculate the standardised change, in the burglary and clear-up rate using the following equation:

$$\text{Standardised Change in Rate} = \text{Log} \left(\frac{2002 / 2003 \text{ Burglary Rate}}{1998 / 1999 \text{ Burglary Rate}} \right)$$

The change in burglary rates and clear-up rates were also compared to the rates in the initial year, to analyse how the changes related to the initial rates. These comparisons were completed using the absolute changes in rates, and percent changes in rates. The absolute change was calculated by subtracting the rate in the final year by the rate in the initial year, and the percent change using the following equation:

$$\text{PercentChangein Rate} = \text{Log} \left(\frac{2002/2003 \text{ BurglaryRate} - 1998/1999 \text{ BurglaryRate}}{1998/1999 \text{ BurglaryRate}} \right) \times 100$$

Another form of statistical analysis of the burglary rates included the calculation of the percent of burglaries in each month of the year. This was conducted to identify the seasonal trends in the data. The percent of burglaries occurring by the time of the day and the day of the week was also calculated.

To achieve research objective two, which involved investigating the characteristics of burglars, statistical analysis was conducted in relation to the demographic characteristics of the burglar. The demographic characteristics included gender, age, ethnicity, occupation and the deprivation decile of the area in which they lived. Other characteristics included how many burglaries an offender committed, how many offenders committed each burglary, what was stolen, what the value of the stolen goods was in each burglary, how the value of goods stolen related to the deprivation decile in which the victim lives, and how the offender entered the burgled property. The statistical analysis conducted in relation to the burglar's characteristics involved the calculation of the percentage of offenders with each characteristic. These percentages were then displayed in bar and line graph format. Additional analysis was conducted which included the calculation of the Pearson correlation between percent of offenders and the deprivation decile in which they lived, and between the amount stolen in each burglary compared to the deprivation decile in which the victim lived. The percent of the total Christchurch population by gender, age and ethnicity was also calculated in order to analyse how proportionate the percentage of offenders in each category were.

In order to achieve the second part of objective two, which was to analyse the distance travelled to commit a burglary, the average (arithmetic mean) distance travelled by offenders was calculated. The average distance travelled in relation to the burglar's characteristics (as described above) was also calculated. The standard deviation of the distance travelled was also calculated. The distance travelled by offenders was also calculated by finding the percentage of offenders living in low, medium and high

deprivation areas that travelled short, medium and long distances. The low deprivation areas were defined as NZDep 2001 Deciles one, two and three, medium deprivation areas were defined as NZDep 2001 Deciles four, five, six and seven, and high deprivation areas were defined as NZDep 2001 Deciles eight, nine and 10. Short distances were considered to be any distances more than one standard deviation below the average distance, medium distances were considered to be less than one standard deviation above and below the average distance. Long distances were more than one standard deviation above the average distance. A chi-square test was conducted on the distances travelled based on the level of deprivation in which the offender lived, and the level of deprivation in which the offender lived to identify if the variables were significantly related to each other. Additionally, the Pearson correlation was calculated for the relationship between the average distance travelled and the NZDep 2001 Decile in which the victim lived, and the amount stolen.

With the survey that will be described below the concept is qualitative but the results were analysed quantitatively. The statistical methodologies involved in the analysis of the survey included the calculation of the percentages of burgled and separately non-burgled properties, and burgled properties in deprived and non-deprived areas that had the features described below.

4.5: Qualitative Approaches Used

4.5.1: Survey of Burgled Properties

In order to achieve research objective three, the aim of which was to evaluate the features of burgled and non-burgled properties in Christchurch, a survey (Appendix 1) was constructed. It involved the subjective analysis of a sample of the properties that were burgled between 2001 and 2003. A simple random selection of 10% of the burgled properties, which are identified in Figure 4.2, was obtained and the survey was conducted on 66 burgled properties. It was also conducted on the properties either side of the burgled property where appropriate (not all of the burgled properties had a house on either side) which resulted in 122 non-burgled properties being surveyed.

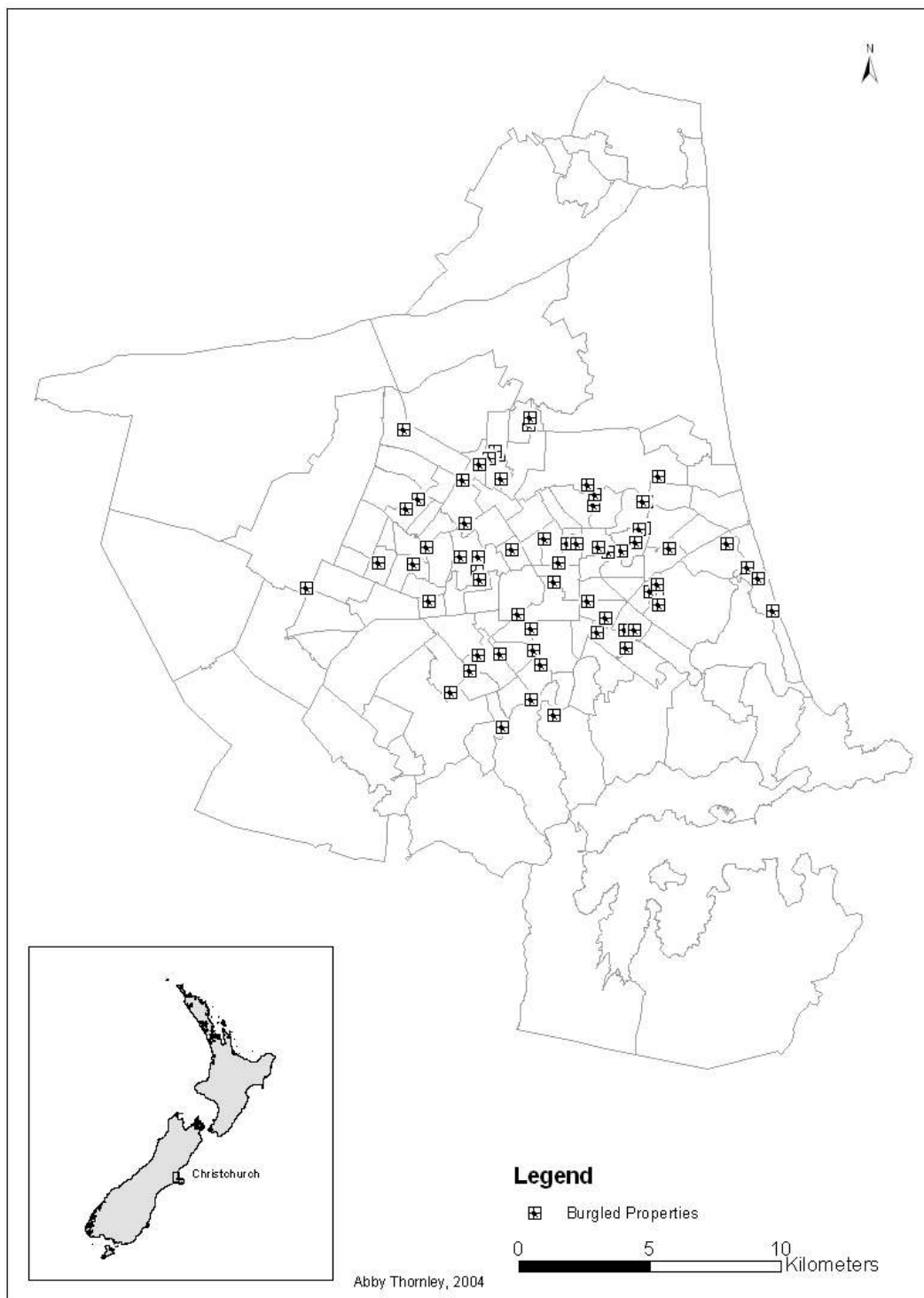


Figure 4.2: Map of Selected Victim's Locations for Survey Analysis for Christchurch

The burgled properties surveyed were divided into deprived and non-deprived properties in order to better analyse the characteristics of those properties. Properties located in areas with deprivation deciles of seven or more were considered deprived, and those located in areas with deprivation deciles of six or lower were considered non-deprived. Thus of the 66 burgled properties surveyed, 30 were in deprived areas and 36 were in non-deprived areas. Of the burgled properties that were randomly selected, two of the properties could not be surveyed. The reason they could not be surveyed was because one of the burgled properties had since been pulled down, and there was an empty lot where the house would have been. The other property was at the end of a cul-de-sac that was very open, and it was very difficult to see which house number related to which house without attracting too much attention, or looking too suspicious.

Although the survey was qualitative in nature, it was analysed quantitatively (as described above). The survey was designed to investigate the way in which burgled and non-burgled properties around Christchurch appear with regard to features that relate to target hardening, CPTED (Crime Prevention through Environmental Design), and defensible space. The survey also considered neighbourhood characteristics surrounding the burgled properties. The target hardening aspects of the properties that were surveyed included the characteristics of the fences that bordered the street. Whether the properties had security alarms, security lights or dogs visible were also observed.

The features related to defensible space and CPTED that were considered was the visibility of the inside of the houses from the street, the visibility of entry points, the size of visible windows and whether shrubbery surrounded the entry points. In addition, whether the property was overlooked by neighbouring properties was observed, as was the position of the property along the street, whether there were alleyways beside the properties, the type of house on the property, the distance of the house from the street and the overall appearance of the property. The characteristics of the surrounding neighbourhood that were observed were the type of area in which the property was located. For instance, if the area was predominantly residential, commercial, rural or industrial area, the type of street was also observed, as was the distance to specific land-use types, such as schools, parks, and

retail outlets, and the overall appearance of the properties. Additionally, the presence of neighbourhood watch signs, and graffiti in the neighbourhood was observed.

4.5.2: Interview with Burglary Squad

A structured open-ended interview was conducted in person with Detective Sergeant Corrie Parnell from the Christchurch Police Department Burglary Squad to discuss the results of the analysis described above. The adequacies of current policing strategies in place to combat burglary rates in Christchurch were also discussed. This interview was conducted to provide another perspective on the results of this research and to help interpret the quantitative and qualitative results.

4.6: Conclusions

This chapter has described the methodologies used to achieve each of the three research objectives. Both quantitative and qualitative methodologies are included in this research in order to produce a more comprehensive study of the temporal and spatial distributions of burglaries in Christchurch. The quantitative methodologies included spatial, temporal and statistical analysis, whereas the qualitative methodologies included a survey and interview. Chapters Five to Seven will present the results that were produced from the methods described in this chapter.

Chapter Five: Ecological Analysis of the Spatial and Temporal Distribution of Residential Burglary and Clear-Up Rates

The purpose of studying crime patterns over time is to discover regularities that aid one in understanding the phenomenon of crime (Brantingham and Brantingham 1984: 93)

5.1: Introduction

The aspects that need to be considered when studying residential burglaries are how the burglary and clear-up rates vary temporally and spatially. This chapter presents the results relating to research objective one, which involves analysing the spatial and temporal distributions of the residential burglary and clear-up rates for Christchurch. The changes in the temporal and spatial distribution of burglary rates over the five years from 1998 to 2003 will be presented. In addition, the changes in the temporal and spatial distribution of the clear-up rates for the three years 2001 to 2003 will be described.

5.2: Burglary Rates

5.2.1: Spatial Distribution of Burglaries in Christchurch

Figure 5.1 illustrates that the burglary rate for residential burglaries dropped slightly during the period 1998/1999 to 2002/2003 (from 20 to 19 burglaries per 1000). However, the reduction was not linear as there was a peak in the burglary rate in 1999/2000 (22 burglaries per 1000 population). This peak was followed by a decrease in the burglary rate in 2000/2001 (18 burglaries per 1000) and another increase in 2001/2002 (20 burglaries per 1000 population). The changes in the burglary rate for these years are, nevertheless, minimal. The spatial distribution of the burglaries in Christchurch will be described with respect to specific Christchurch suburbs. Figure 5.2 illustrates the locality of the suburbs referred to in the descriptions of the areas with varying burglary rates. The central city has had the highest residential burglary rates for the period 1998-2003. The eastern suburbs also had relatively high burglary rates and southern suburbs had the lowest rates of burglary (Figure 5.3). Additionally there was a 'central corridor' of high burglary rates running from west to east across the city and includes suburbs such as Sockburn, Addington, Riccarton, Opawa, Woolston and Linwood. Riccarton Road also had a high burglary rate (Detective Sergeant Corrie Parnell). There were some pockets of areas that had low burglary rates in the mid north-west of the city, such as Fendalton and St Albans. Additional areas with low burglary rates include Sumner, Westmorland and many southern suburbs such as the Port Hills.

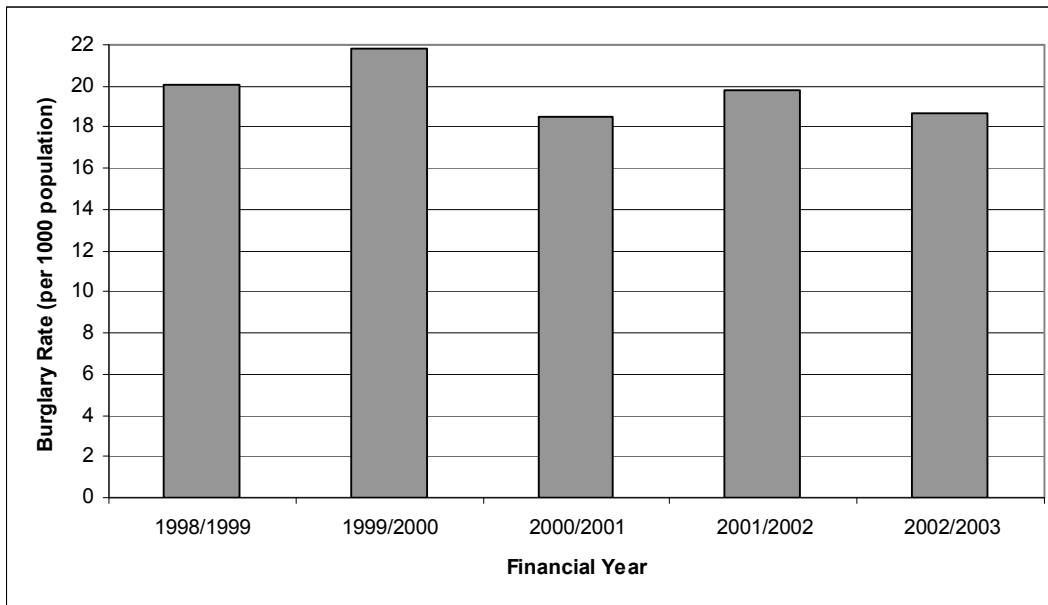


Figure 5.1: Total Change in Burglary Rate in Christchurch for the period 1998/99-2002/03

This spatial distribution remained consistent for the years 1998-2003, with the central corridor and New Brighton having consistently high burglary rates. In addition, Westmorland and West Melton had consistently low burglary rates. There were some differences between the years such as in 1998/1999 northern suburbs had higher burglary rates, which included areas such as Marshland and Harewood (Figure 5.4). Southern suburbs including Cashmere and Heathcote had lower burglary rates, in 1998/1999. In 1999/2000 the western areas such as Yaldhurst, Fendalton and Oaklands had lower burglary rates, and the eastern areas had higher burglary rates, especially from Opawa east across to Sumner, and Linwood east across to Aranui (Figure 5.5). The spatial distribution of burglaries in 2000/2001 was similar to that of 1999/2000, except that the south-western areas, such as Hornby, Islington and Sockburn had higher burglary rates in 2000/2001 (Figure 5.6). The north-western areas of Christchurch such as Papanui and Yaldhurst had high burglary rates in 2001/2002. Areas such as Cashmere and Halswell in the western and south-western areas had lower burglary rates in 2001/2002 (Figure 5.7). In 2002/2003 the suburbs with the highest burglary rates were situated in the central city and along the central corridor, the southern and south-western areas had the lowest burglary rates (Figure 5.8).



Figure 5.2: Locality Map of Suburbs in Christchurch

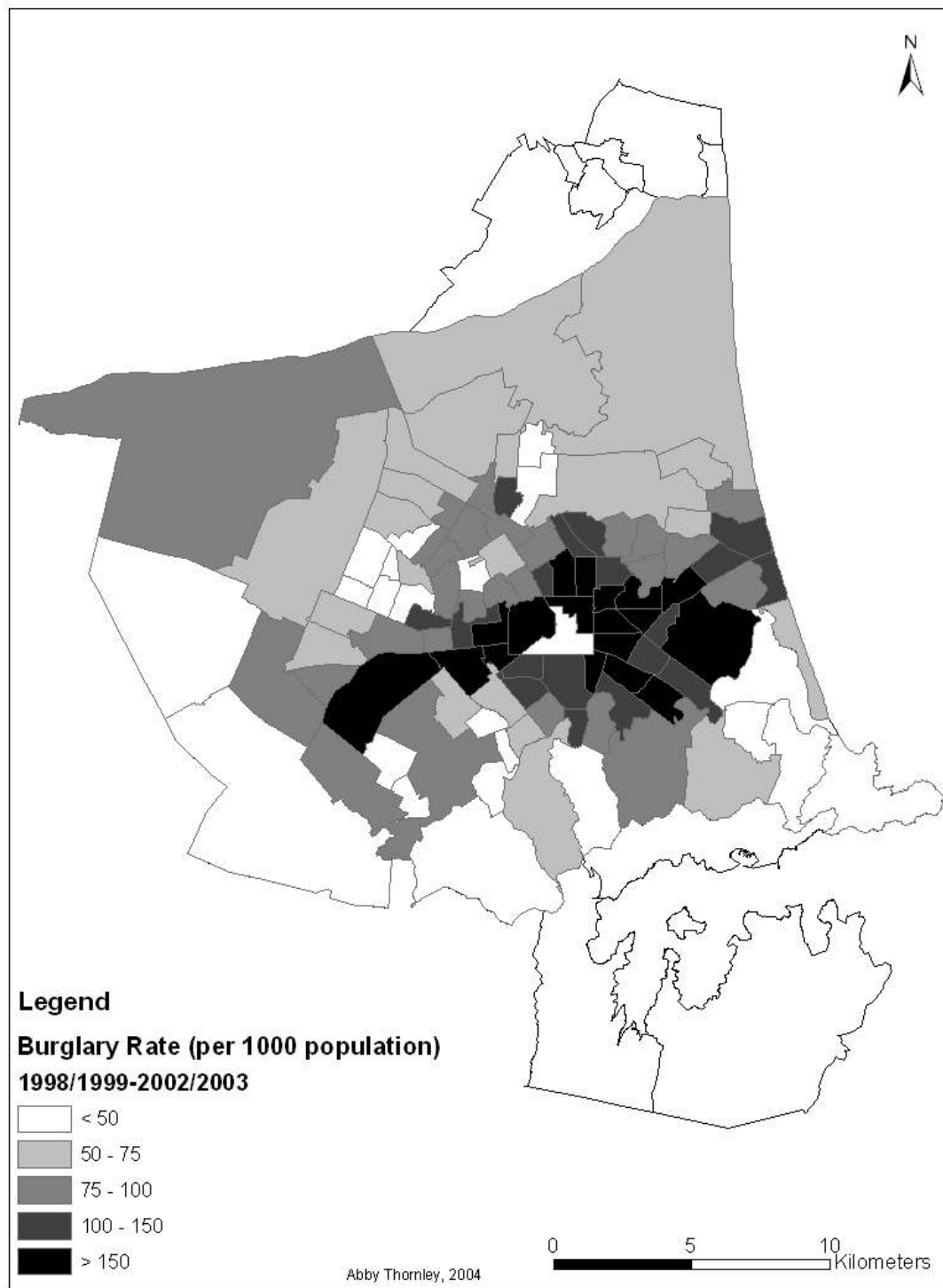


Figure 5.3: Total Burglary Rate by CAU for Christchurch for the period 1998 to 2003

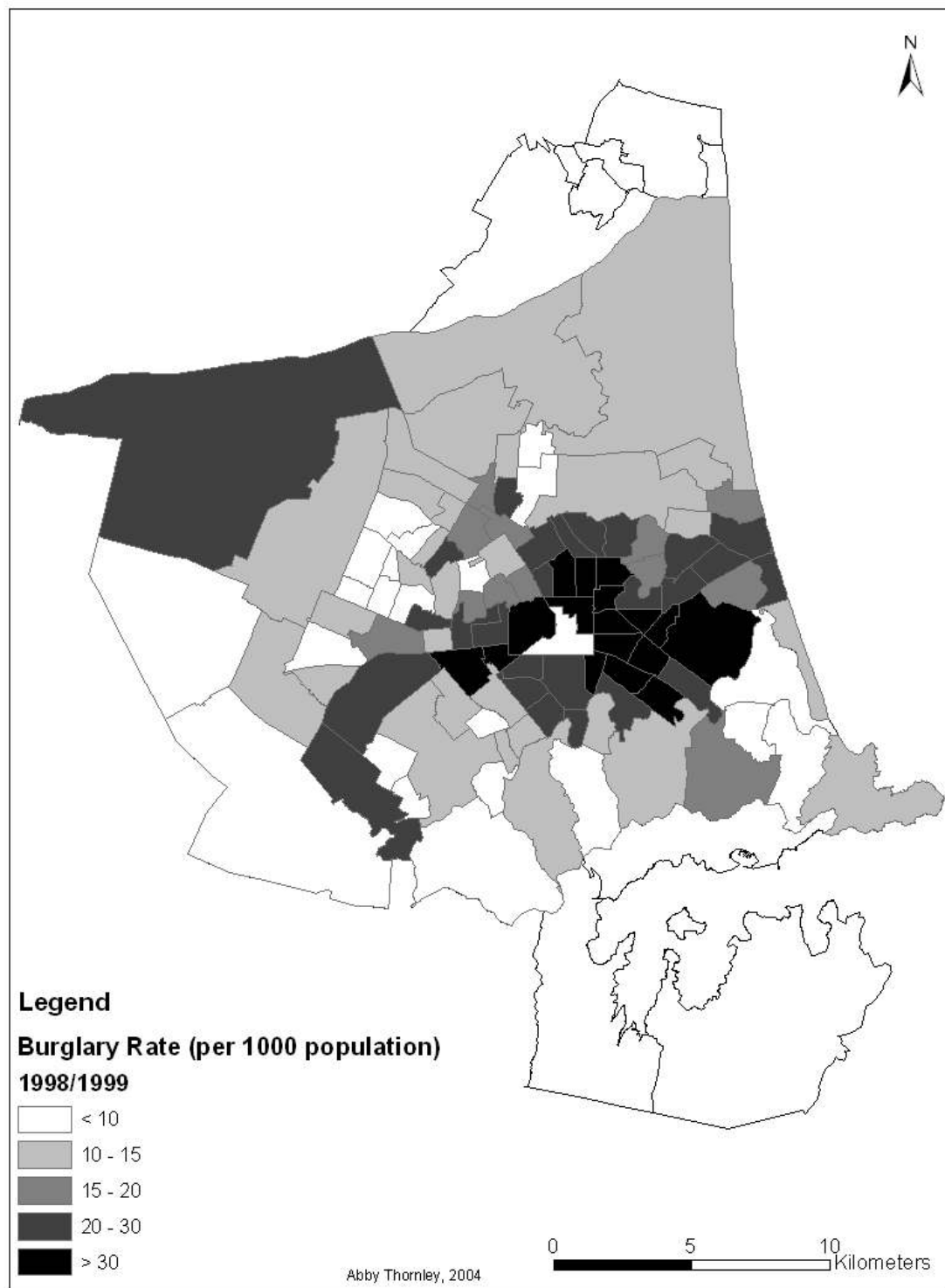


Figure 5.4: Burglary Rate by CAU for Christchurch 1998/1999

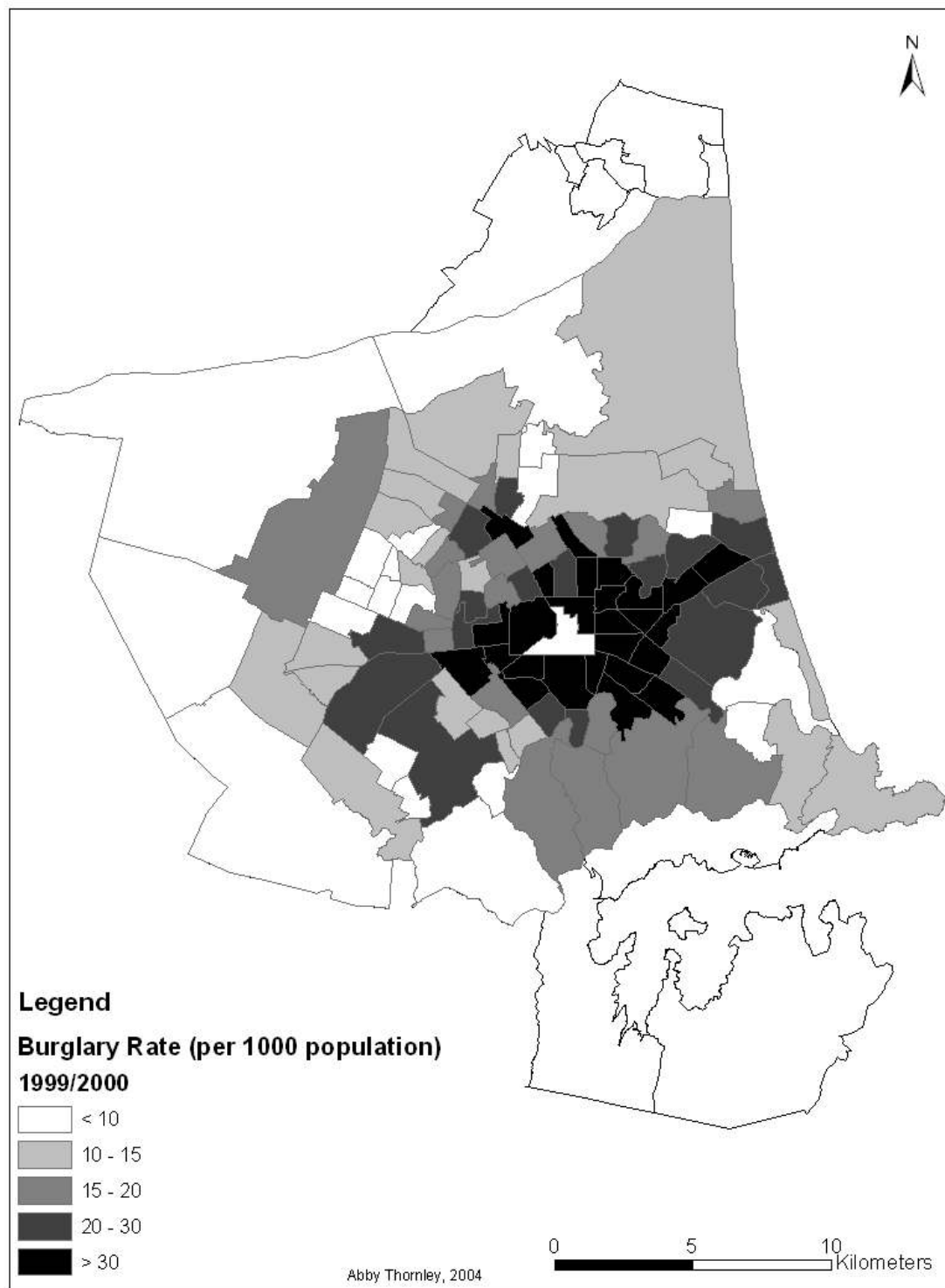


Figure 5.5: Burglary Rate by CAU for Christchurch 1999/2000

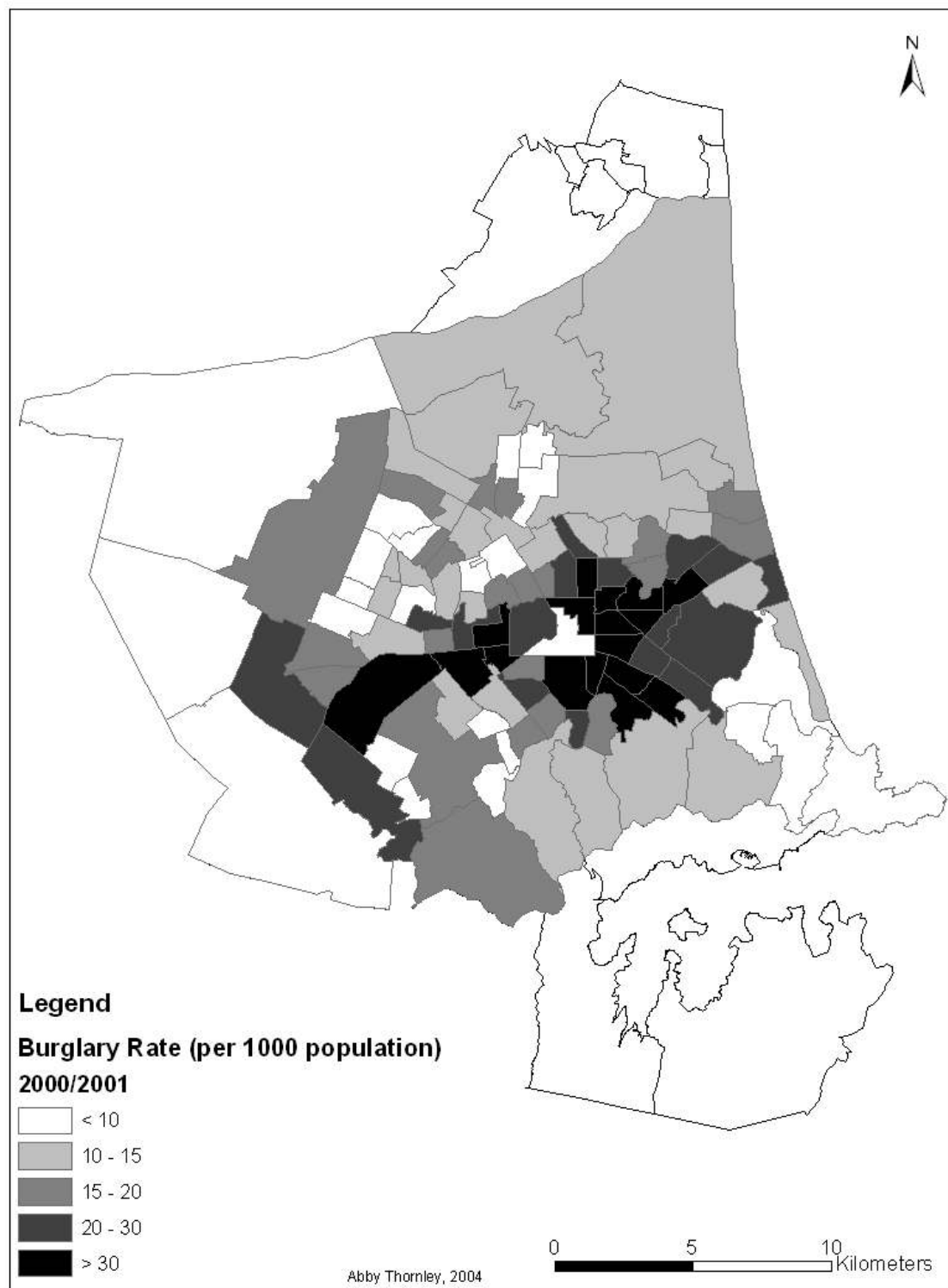


Figure 5.6: Burglary Rate by CAU for Christchurch 2000/2001

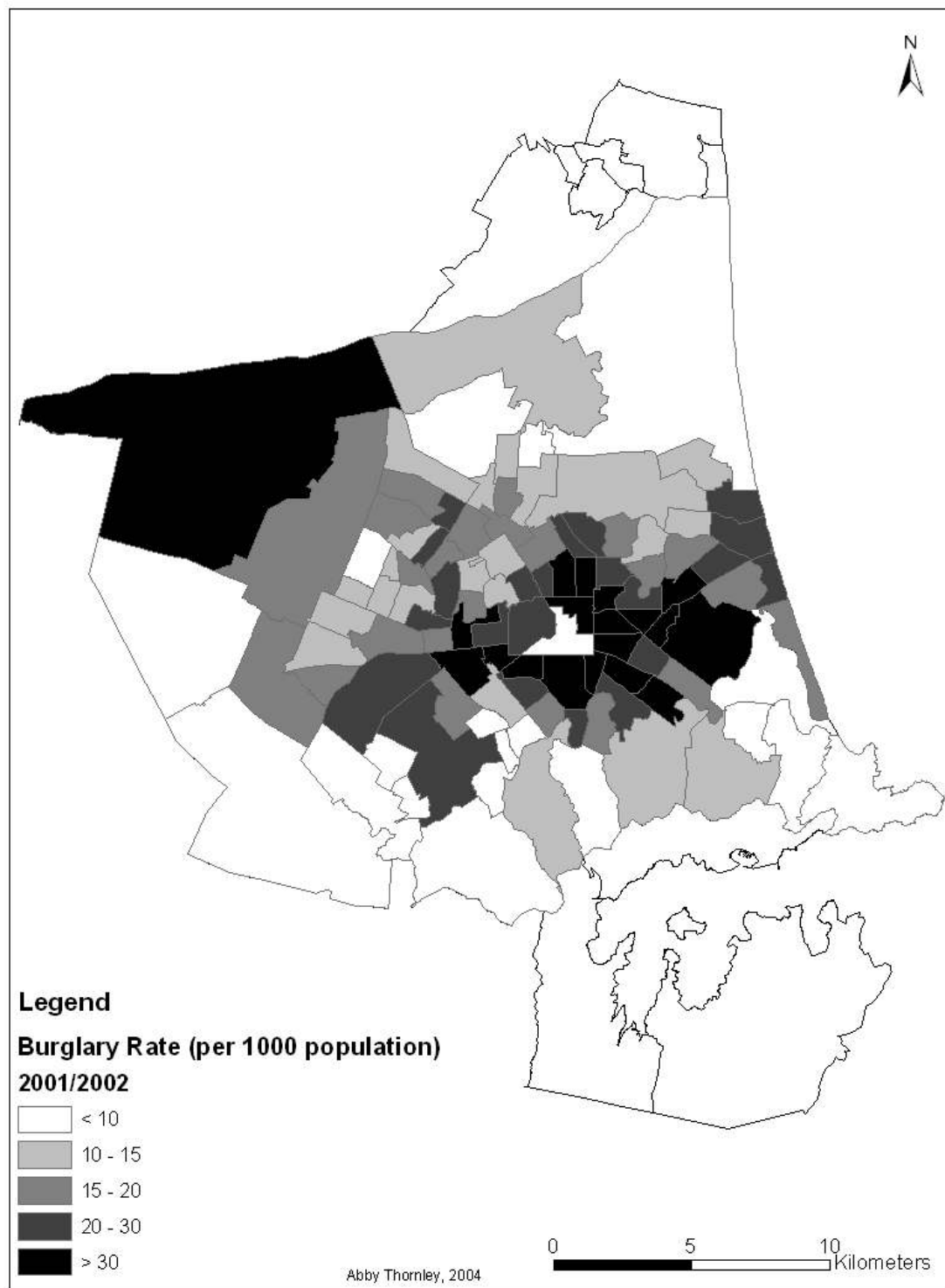


Figure 5.7: Burglary Rate by CAU for Christchurch 2001/2002

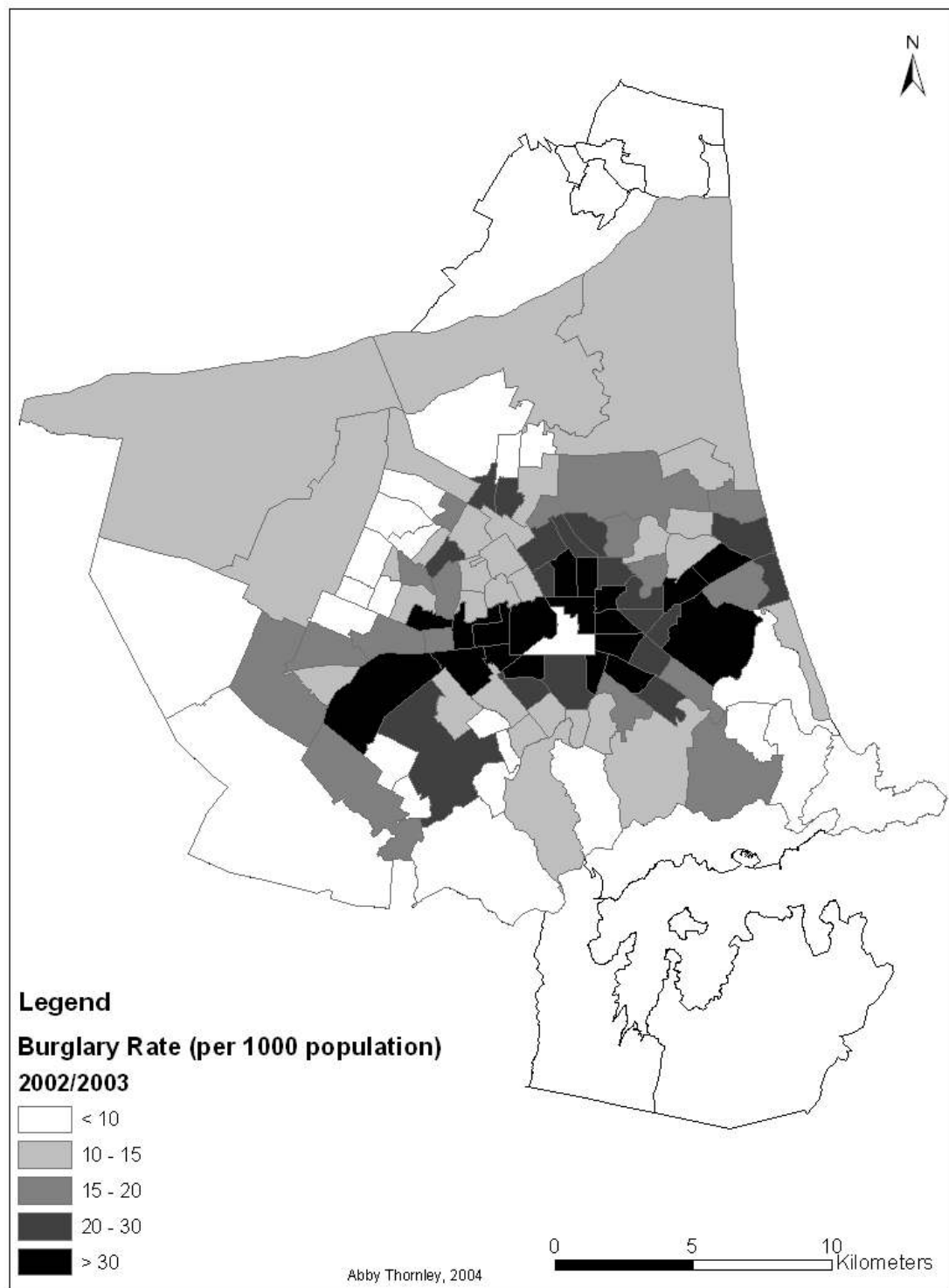


Figure 5.8: Burglary Rate by CAU for Christchurch 2002/2003

5.2.2: Patterns of Change in Burglary

The percentage change in residential burglary rates from 1998/1999 to 2002/2003 was calculated and the changes were compared to the original (1998/1999) burglary rates. There was a negative relationship between percentage change in burglary rate and the burglary rate in 1998/1999 (Pearson=-0.27) (Figure 5.9). This relationship means that areas with the highest burglary rates in 1998/1999 showed the largest overall decrease in burglary rate from 1998/1999 to 2002/2003. However, the low correlation indicates that the relationship is not strong. Additionally, areas that had low burglary rates in 1998/1999 showed an increase in burglary rate from 1998/1999 to 2002/2003.

The spatial distribution of the percentage change in burglary rates shows very few trends (Figure 5.10). Suburbs with increases in burglary rates from 1998/1999 to 2002/2003 were clustered around Hoon Hay, Mt Pleasant, Fendalton, Burwood and Riccarton. The largest decreases in burglary rates were clustered around Cashmere, Westmorland, Sumner, Marshland, St Albans and Harewood.

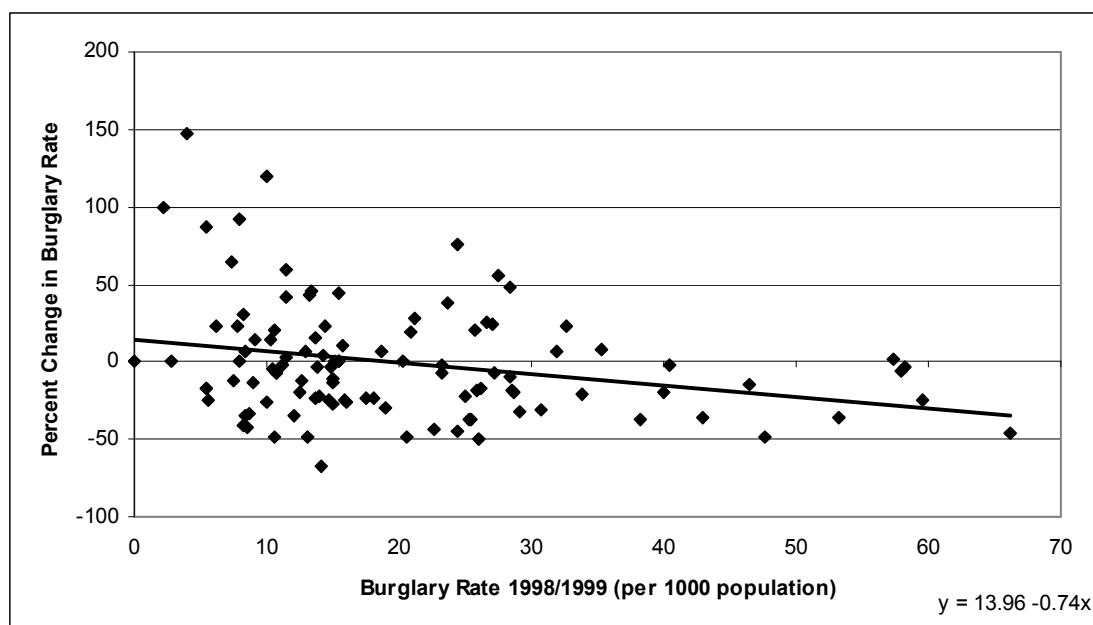


Figure 5.9: Percentage Change in Burglary Rate from 1998/1999 to 2002/2003 compared to Burglary Rate (per 1000 population) in 1998/1999 for Christchurch

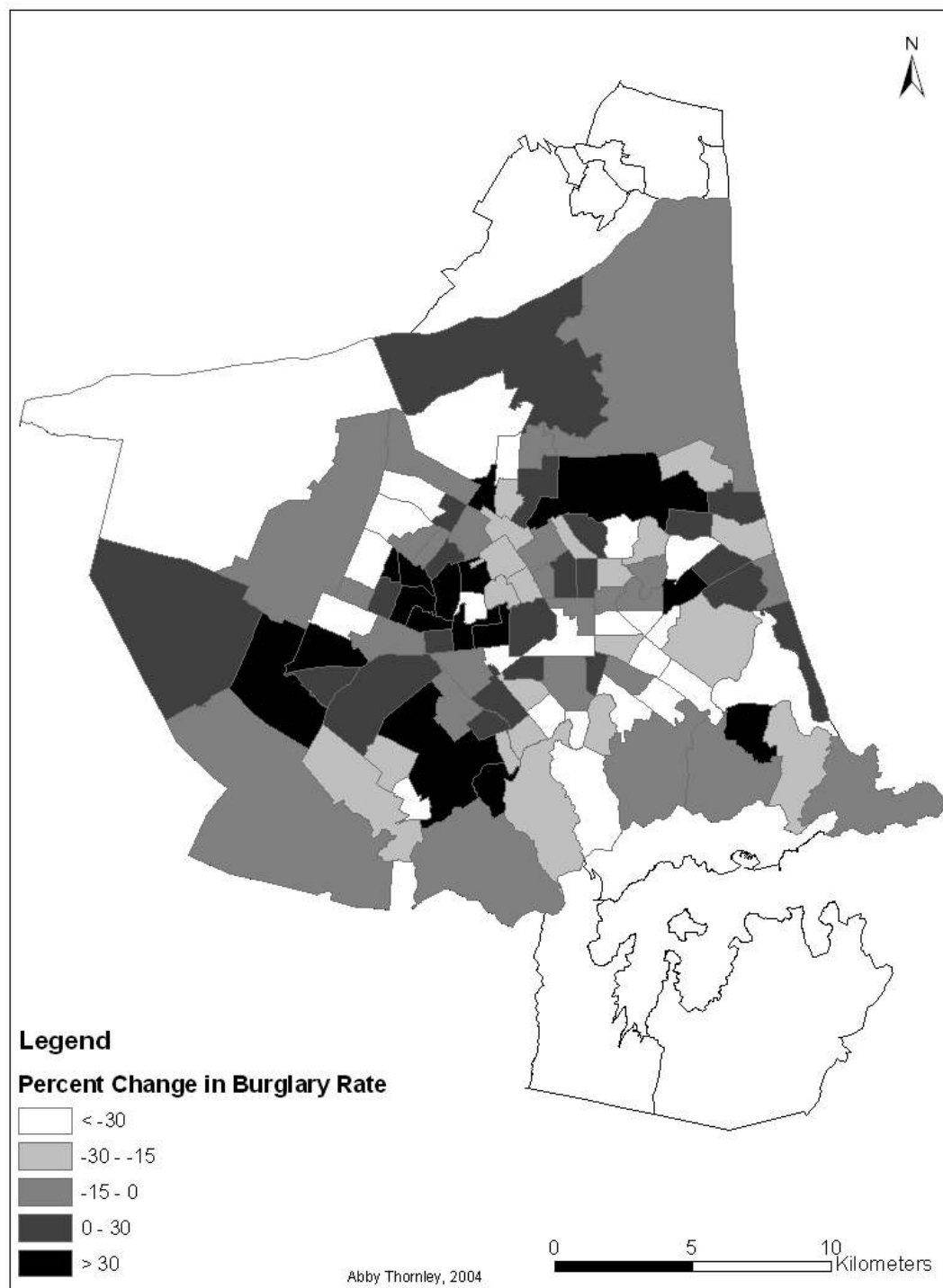


Figure 5.10: Percentage Change in the Burglary Rate by CAU for Christchurch between 1998 and 2003

5.2.3: Burglary and Deprivation

Variation in the residential burglary rate were also analysed according to the 2001 New Zealand deprivation index. To analyse the burglary rate by the NZDep 2001 Decile, the Pearson correlation was calculated for each of the years individually and collectively. This calculation was to identify any relationship that may be present between the burglary rate and NZDep 2001 Census Area Unit (CAU) Decile. For the entire study period (1998/1999-2002/2003), there was a strong positive Pearson correlation evident between NZDep 2001 Decile and burglary rate (0.76). The correlation between deprivation and burglary rates for the study period was reinforced when a scatter diagram for the two variables was produced, and showed that as the deprivation decile increased so did the burglary rate (Figure 5.11). Interestingly, the burglary rates were larger than predicted in eight of the census area units that were in the higher deprivation deciles. The relationships were examined for each individual year by calculating the Pearson correlation and the gradient of the line when the scatter diagrams were produced (Table 5.1). These correlations also demonstrated a strong and positive relationship between deprivation and burglary rates, with 1999/2000 having the weakest correlation and 2002/2003 having the strongest correlation.

Table 5.1: Pearson's Correlation and Gradient of the Line between Burglary Rate and Continuous NZDep 2001 Deciles of Burglaries for Christchurch (1998-2003)

Financial Year	Pearson Correlation (by Census Area Unit)	Gradient (by Census Area Unit)
1998/1999	0.72	4.52
1999/2000	0.47	4.57
2000/2001	0.71	3.72
2001/2002	0.71	4.10
2002/2003	0.74	4.14
All Years	0.76	21.05

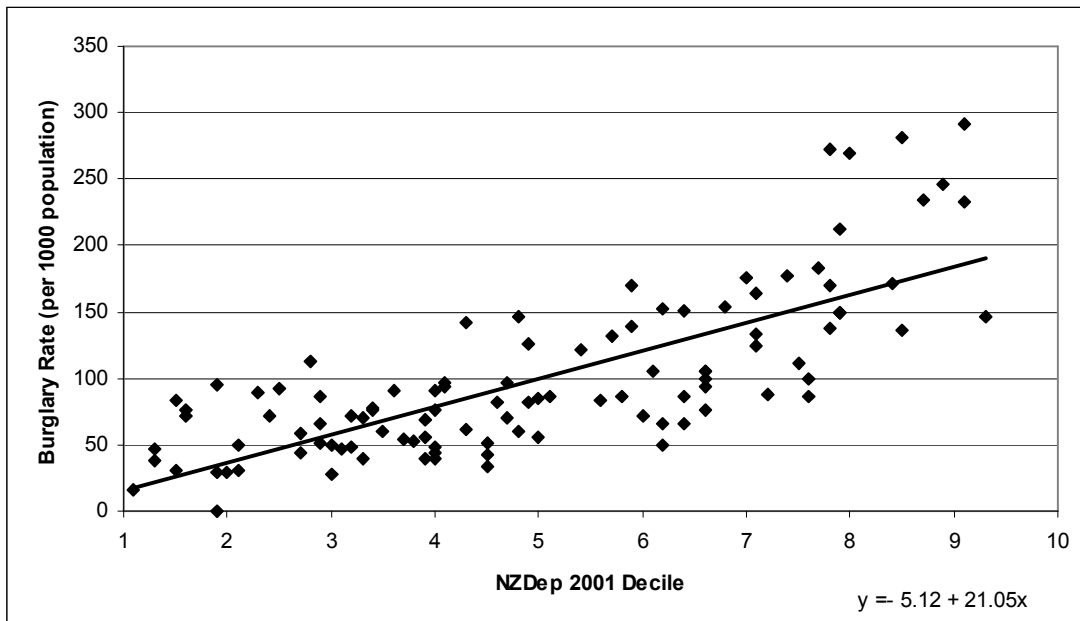


Figure 5.11: Scatter-plot of Burglary Rates (per 1000 population) by Continuous NZDep 2001 Deciles using Census Area Unit Values for Christchurch for entire study period (1998-2003)

The burglary rate by deprivation decile was calculated for each year to examine the temporal changes in burglary rates by deprivation decile for Christchurch from 1998/1999 to 2002/2003 (Figure 5.12). The rate for each deprivation decile is relatively consistent, and adopts similar distributions for each deprivation decile. In 1998/1999, 1999/2000 and 2002/2003 the burglary rate (per 1000 population) decreases from decile nine to decile ten, but in 2000/2001 and 2001/2002 the burglary rate per 1000 population increased from deprivation decile nine to deprivation decile ten.

The percentage change in burglary rates from 1998/1999 to 2002/2003 was examined for each NZDep 2001 Decile in order to identify any socio-economic trends in the changes in the burglary rates. There was very little correlation between the percentage change in burglary rates from 1998/1999 to 2002/2003 and NZDep 2001 Decile (Pearson correlation=-0.04) (Figure 5.13). Hence, the burglary rate did not increase or decrease disproportionately in higher or lower deprivation deciles over this period.

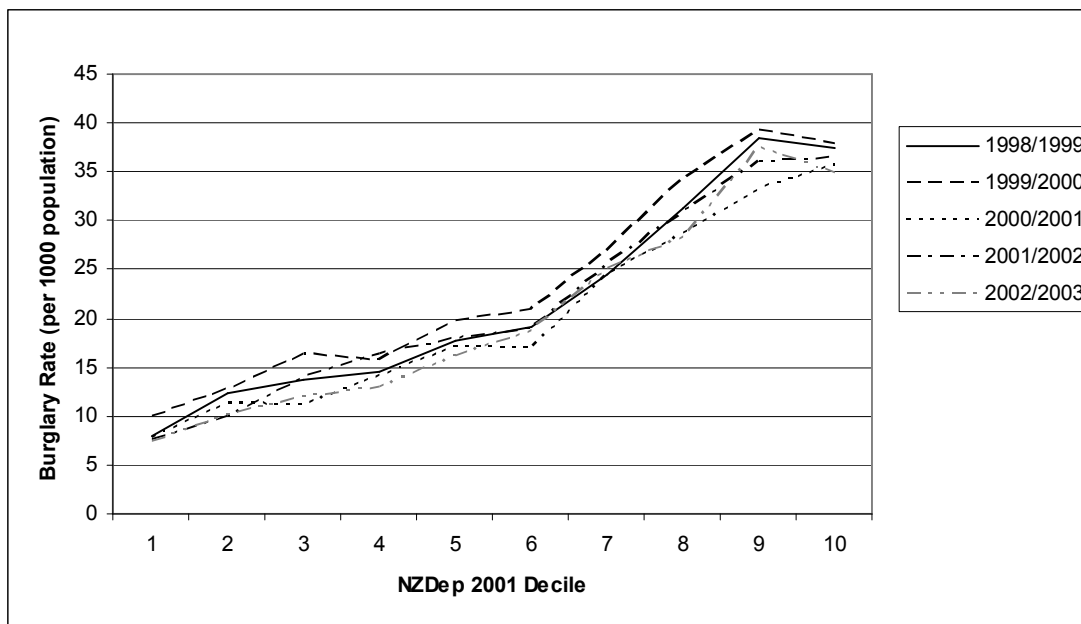


Figure 5.12: Burglary Rate (per 1000 population) by NZDep 2001 Decile for Christchurch for the period 1998-2003

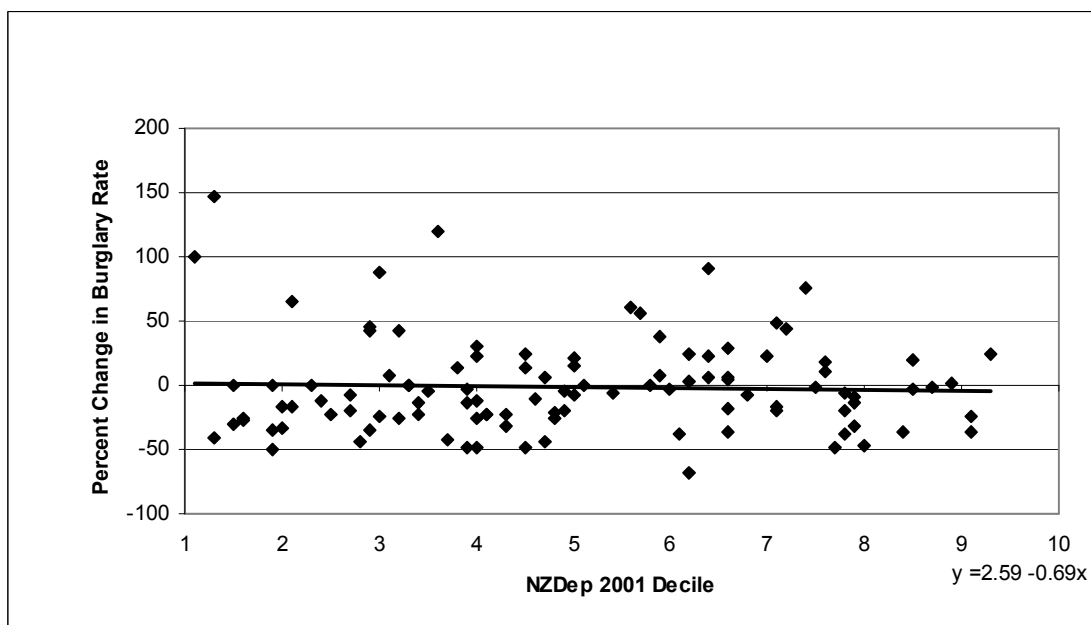


Figure 5.13: Percentage Change in Burglary Rate by Continuous NZDep 2001 Decile for Christchurch from 1998 to 2003

5.3: Clear-Up Rates

5.3.1: Spatial Distribution of Clear-Up Rates in Christchurch

The spatial and temporal analysis of clear-up rates is important when studying burglaries as it can aid in the evaluation of police strategies. The spatial distribution of the clear-up rates, for the period 2001 to 2003, showed that the peripheral suburbs of Christchurch have a lower clear-up rate, especially the western, northern and southern areas. The areas with lower clear-up rates included Islington, Westmorland, Mt Pleasant, and Hawthorndon (Figure 5.14). The central corridor also has a relatively low clear-up rate, which cannot be explained away by also having a low burglary rate. Suburbs with high clear-up rates were located in the north western and south-eastern areas of the city and include Harewood, Burnside, Yaldhurst, Cashmere and Sumner. Average clear-up rates were situated along the eastern coast and on the southern side of the central city including areas such as New Brighton, Hoon Hay, Spreydon and Sockburn.

Spatially the distribution of clear-up rates across Christchurch remained relatively constant for each individual year. For example, Sumner had a high clear-up rate throughout the study period. Some differences, though, were that in 2001 and 2002, North Brighton had a high clear-up rate, but in 2003, the clear-up rate dramatically decreased in that area. In 2003, the areas with high clear-up rates are generally more limited spatially to the central city and the northern and eastern suburbs. In 2003, the highest clear-up rates were in Harewood, Papanui, Burwood and Mt Pleasant.

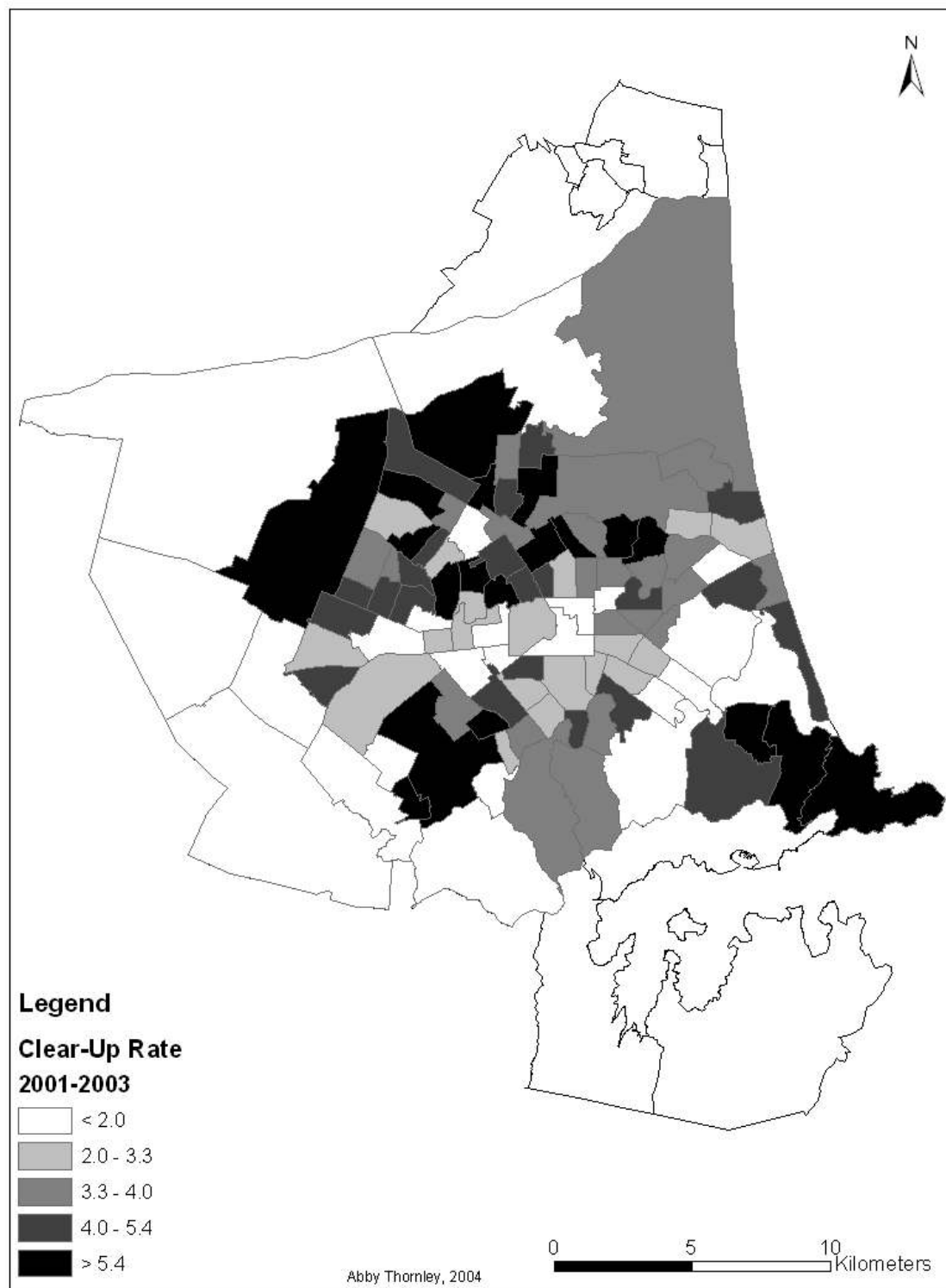


Figure 5.14: Burglary Clear-Up Rate by CAU for Christchurch (2001-2003)

5.3.2: Patterns of Changes in Clear-Up Rates

In Christchurch, the burglary clear-up rates increased slightly from 3.4% in 2001 to 3.5% in 2003. It is important to examine how the clear-up rates changed with respect to the original clear-up rate (Figure 5.15). The Pearson correlation was calculated in order to identify the relationship between the absolute change in clear-up rates (from 2001 to 2003) and the clear-up rate in 2001 (by CAU). The calculation resulted in a strongly negative Pearson's correlation (-0.75) proving that areas with low clear-up rates in 2001 had the highest increase in clear-up rates from 2001 to 2003. Thus if the clear-up rate was low in 2001 then the clear-up rate in that area increased in 2003, however if the clear-up rate was high in 2001 the clear-up rate decreased in 2003.

Spatially, there was some clustering of areas with the largest increases in clear-up rates (Figure 5.16). The areas with the largest increases in clear-up rates were clustered around the northern areas of Christchurch such as Harewood, Burwood and Fendalton. Conversely, there was little clustering of the areas with the largest decrease in clear-up rates.

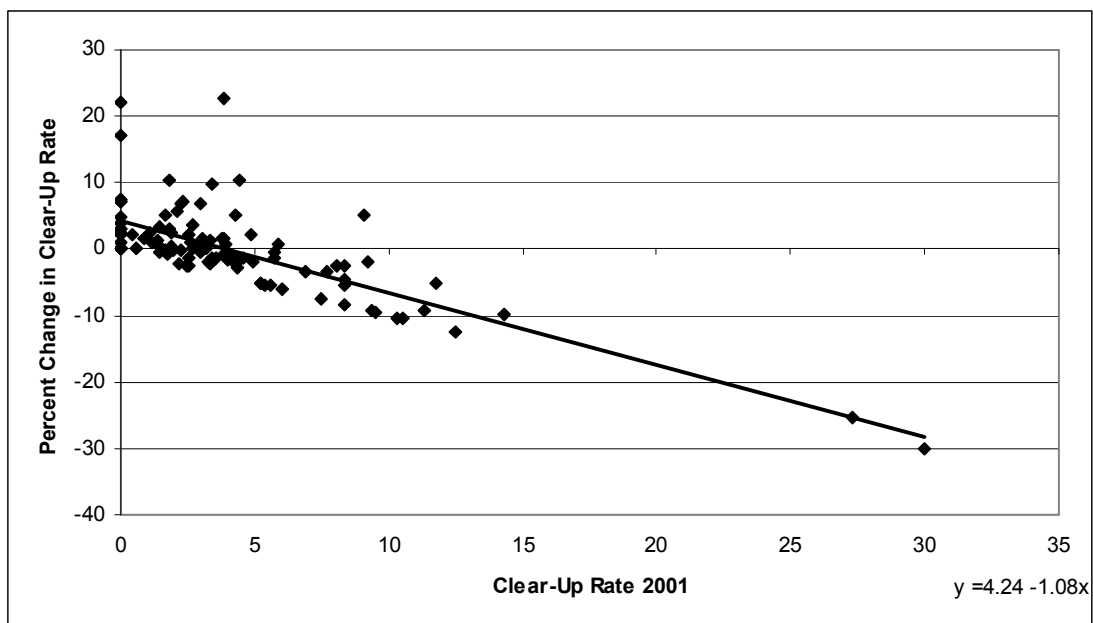


Figure 5.15: Absolute Change in Clear-Up Rate from 2001 to 2003 against the Clear-Up Rate in 2001 for Christchurch

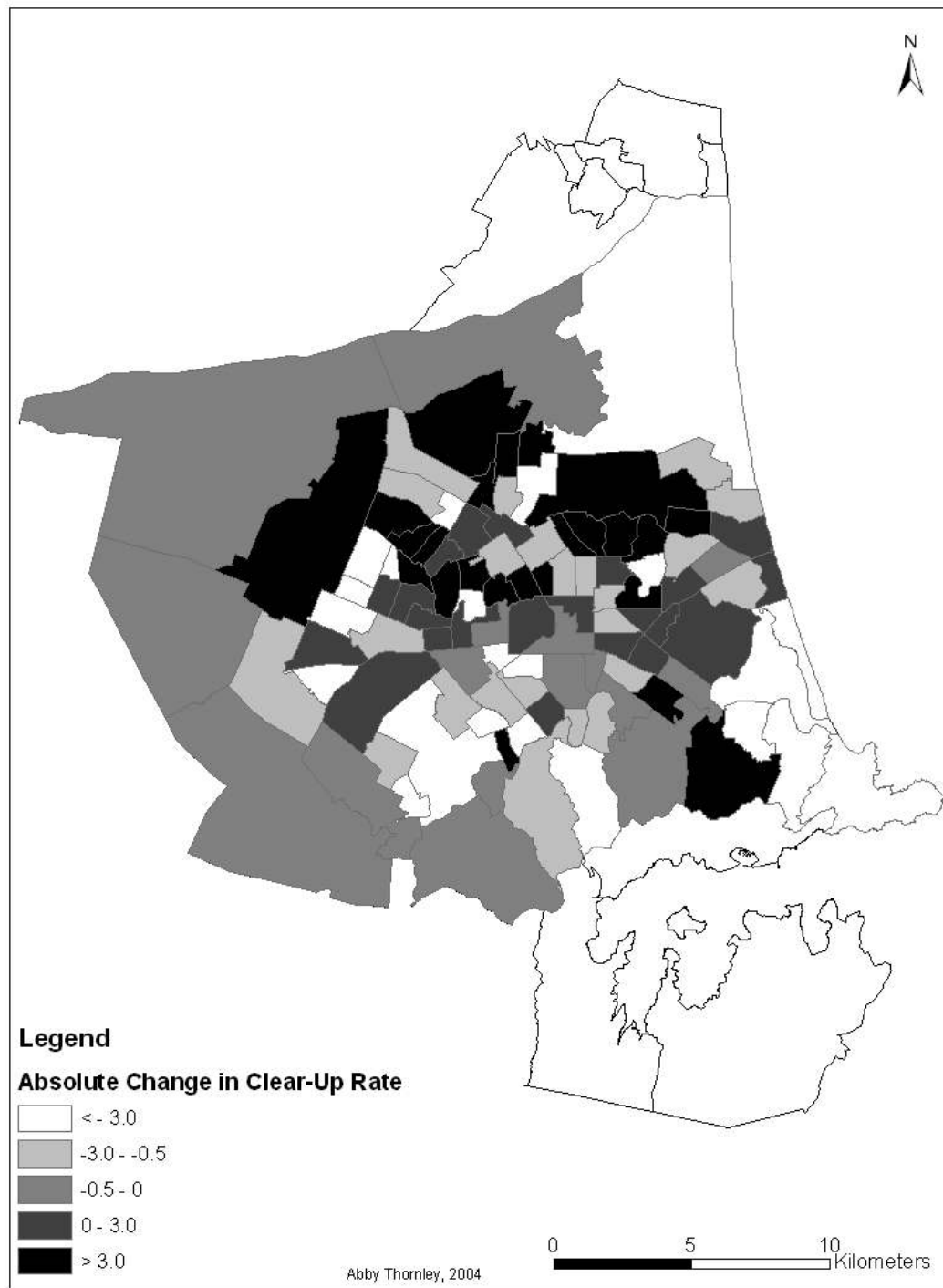


Figure 5.16: Absolute Change in the Clear-Up Rate by CAU from 2001 to 2003 for Christchurch

5.3.3: Clear-Up Rates by Deprivation

To provide a smaller scale analysis and to aid in the identification of the trends in clear-up rates, the NZDep 2001 Decile was correlated with the clear-up rates. In analysing the clear-up rates by the NZDep 2001 Decile it was evident that overall as the deprivation of an area increased, the clear-up rate, for the period 2001 to 2003, decreased (Figure 5.17). The relationship between deprivation decile and clear-up rate was not significant for the period 2001 to 2003 (Pearson correlation=-0.28) or for the individual years (Table 5.2). To identify possible explanations for the lack of correlation between variables, the residuals were calculated (the difference between the predicted values and the observed values) (Figure 5.18). The visual representation of the residuals illustrated that there was a great deal of variation in clear-up rates in each NZDep 2001 Decile. The variation in residuals was the most extreme in the lower deprivation deciles. This degree of variation aids in providing an explanation as to the weakness of the relationship between deprivation and clear-up rates

Table 5.2: Pearson's Correlation and Gradient of the Line between Clear-Up Rate and Continuous NZDep 2001 Deciles of Clear-Up Rates for Christchurch (2001-2003)

Year	Pearson Correlation (by Census Area Unit)	Gradient (by Census Area Unit)
2001	-0.20	-0.01
2002	-0.20	-0.30
2003	-0.13	-0.26
All Years	-0.28	-0.28

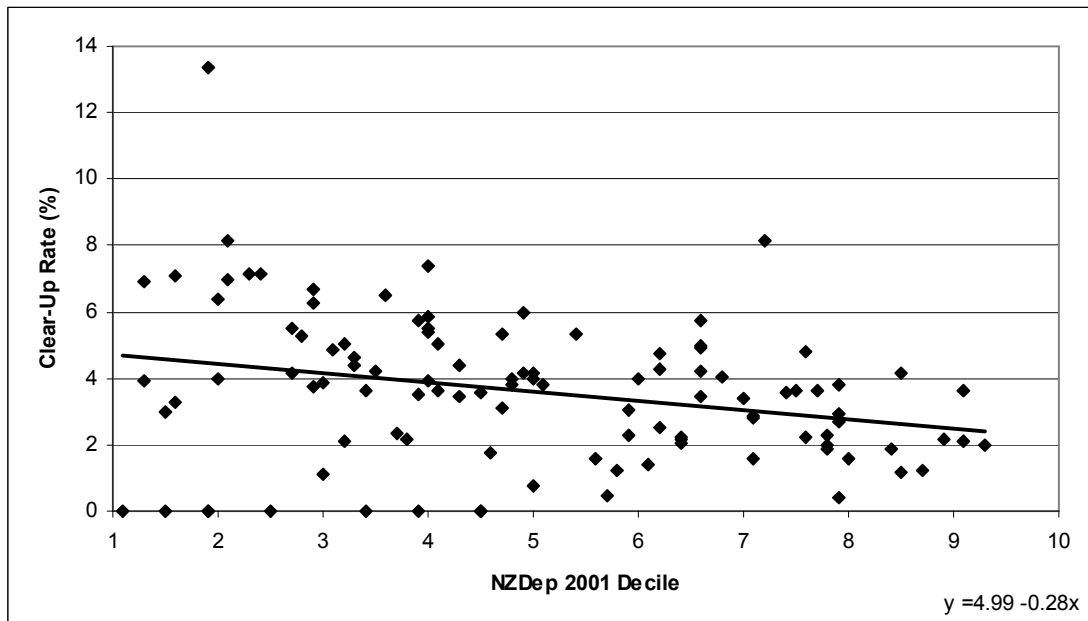


Figure 5.17: Clear-Up Rate of Residential Burglary by Continuous NZDep 2001 Deciles in Christchurch (2001-2003)

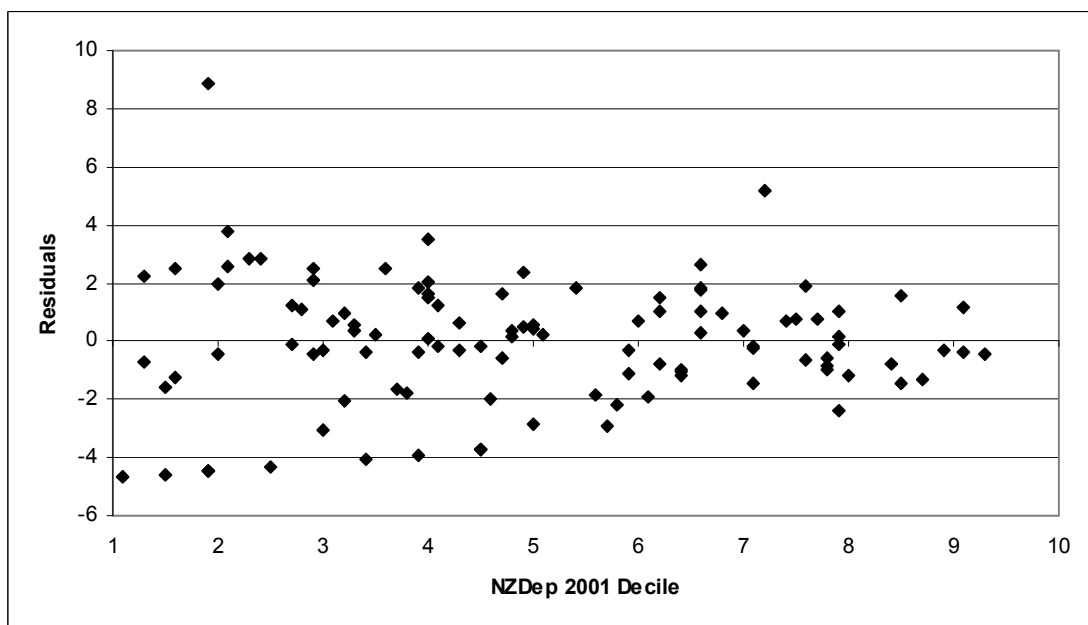


Figure 5.18: Residuals for Line of Best Fit Equation for Clear-Up Rates 2001-2003

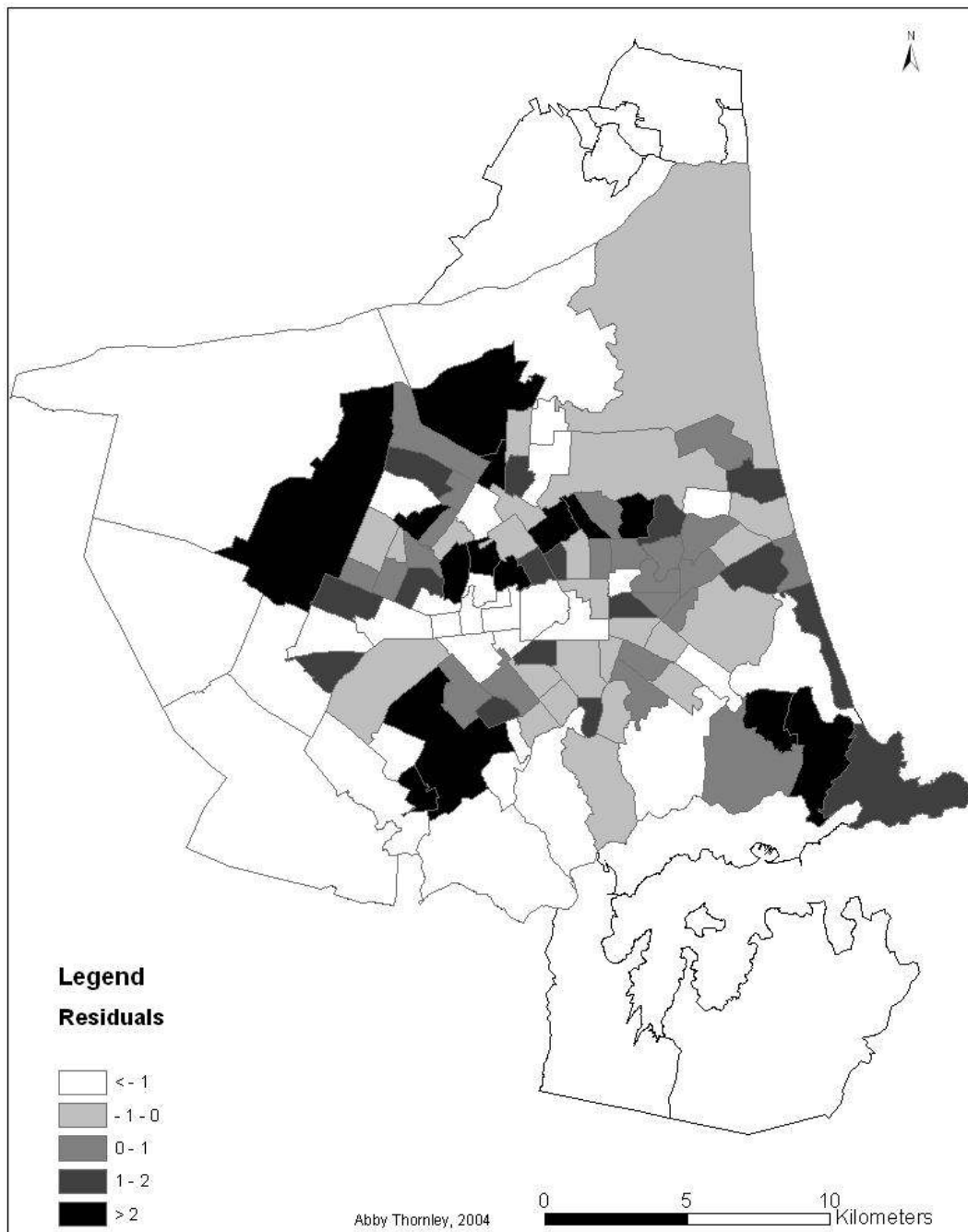


Figure 5.19: Location of Residuals for Line of Best Fit Equation for Clear-Up Rates by CAU 2001-2003

Figure 5.19 illustrates the spatial locations of the residuals in clear-up rates. It also shows that the areas with clear-up rates lower than predicted for their level of deprivation are clustered in the central city areas. Areas with clear-up rates higher than expected for their level of deprivation were in the south-east, south-west and north-west areas of the city, particularly Halswell, Mount Pleasant and Yaldhurst. The areas where the residuals were the closest to zero, meaning the clear-up rates were closest to the clear-up rates expected were in north-eastern and the central southern areas such as Hawthornden, Sydenham and Waltham.

The clear-up rate was calculated by NZDep 2001 Decile for each year individually, and combined (Figure 5.20). The clear-up rates in 2001 were more variable in relation to the NZDep 2001 Deciles than in 2002 or 2003. In 2002, the clear-up rate sharply decreased from deprivation decile one to deprivation decile two and then remained relatively constant for the other deprivation deciles. The clear-up rate in 2003 increased from deprivation decile one, to two, then decreased from deprivation decile two through to deprivation decile nine, where the clear-up rate then increased.

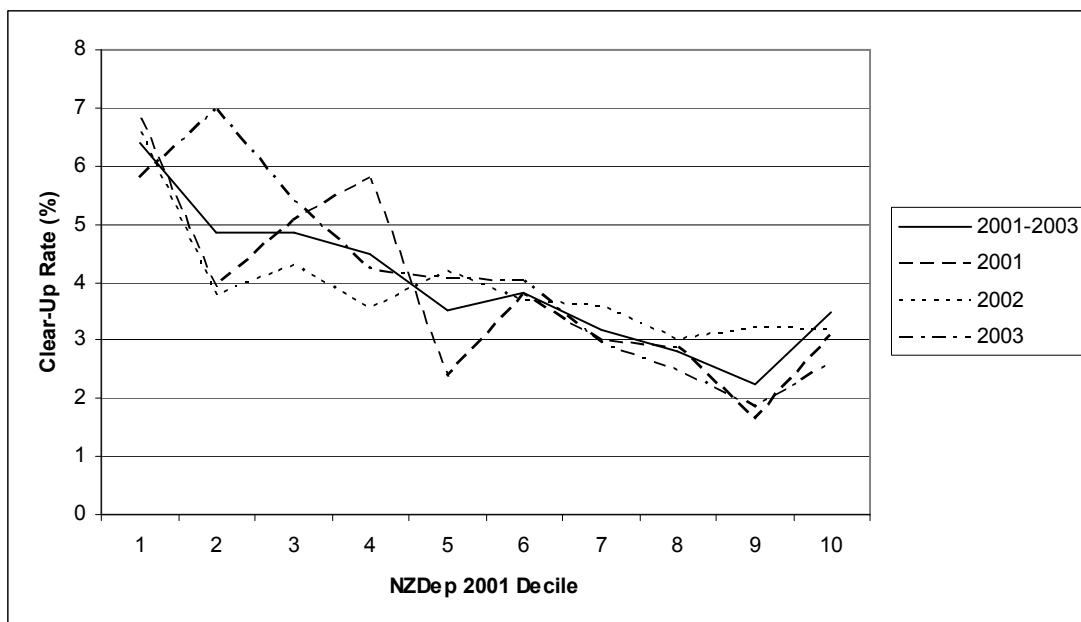


Figure 5.20: Clear-Up Rate of Residential Burglaries by NZDep 2001 Decile for Christchurch for the period 2001-2003

The change in the clear-up rates was analysed at the NZDep 2001 Decile level, to identify any socio-economic trends in the change in clear-up rates. Figure 5.21 illustrates the log values of the change in clear-up rates in NZDep 2001 Deciles in Christchurch for the period 2001 to 2003. The deprivation deciles with largest increases were deprivation decile two (0.3) and deprivation decile five (0.2). Deprivation decile four (-0.1) had the largest decrease in clear-up rate. Other deprivation deciles that showed a decrease in clear-up rate were deprivation decile one, eight and 10 (-0.1 each). The clear-up rate in deprivation decile seven (0) did not change at all. There was no correlation evident between the log values of the change in clear-up rate (from 2001 to 2003), and the NZDep 2001 Deciles (Pearson=-0.01). Thus, no socio-economic trends in the changes in clear-up rates were identified.

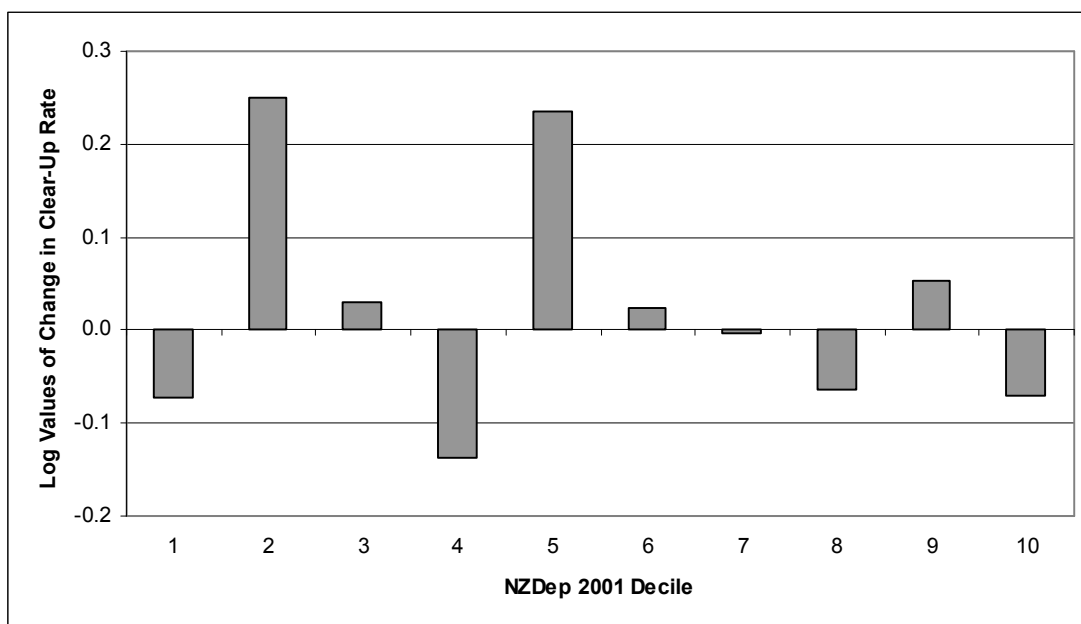


Figure 5.21: Log Values of Change in the Clear-Up Rate for Burglaries by NZDep 2001 Decile for Christchurch (2001-2003)

5.4: Conclusions

This chapter has presented the ecological results of the analysis into burglary and clear-up rates to achieve research objective one. In summary, there was an overall decrease in burglary rate. The areas with the highest burglary rates were generally located in the inner city and along the central corridor. There was also a positive correlation found between burglary rate and deprivation. Additionally, it was found that the largest decreases in burglary rates occurred in areas that had the highest original burglary rates. There was found to be no correlation between changes in burglary rates and deprivation. The overall clear-up rate increased from 2001 to 2003. The areas of the city with the highest clear-up rates were the northern and eastern suburbs. A small inverse relationship between clear-up rates and deprivation was found. There were no apparent spatial trends with respect to the change in clear-up rates from 2001 to 2003, but the largest increase clear-up rates were strongly correlated to areas with low original clear-up rates.

As the characteristics of offenders contribute significantly to the spatial and temporal distribution of burglary and clear-up rates Chapter Six will present the results pertaining to the demographic characteristics of burglars; it will also present the results of the analysis of the distances travelled to burgle.

Chapter Six: Becoming Acquainted with the Burglar

If we want to understand the geography of crime we have to understand how place, over time, is part of the practical consciousness of social actors who engage in behavior, including actions we define as criminal (Bottoms and Wiles 1992: 19).

6.1: Introduction

This chapter presents the results relating to research objective two, the focus of which was to identify the socio-demographic characteristics of the offenders and the distances they travel to burgle. In this study, the characteristics of 857 offenders were examined. More specifically, this chapter will discuss the age, gender, ethnicity and occupation of the offender, and where they lived for the period 2001 to 2003. The value and types of items stolen will also be presented and the values will be related to the deprivation of the area in which the victim lives. In addition, results regarding the days that burglaries occur and the time of day that they occur will be presented. The distance an offender will travel to commit a burglary will be examined with regard to the socio-demographic characteristics of the offenders in order to identify which of these characteristics influences the distance. Additionally whether or not the distance travelled to burgle was influenced by the level of deprivation of the area in which the offender lived, or the level of deprivation of the area in which the victim lived will be explored. The directions in which the offenders travel to commit a burglary will be illustrated using a sample of forty of the offenders. Finally, the distance travelled to commit a burglary will be discussed with regard to the number of burglaries committed, the number of offenders committing each burglary, and the amount stolen at each burglary.

6.2: Who is the Burglar?

6.2.1: Offender's Gender

With respect to the offender's gender for the years 2001-2003, 86.2% of offenders were male and 13.8% were female. The percentages of offenders were compared to the percentages of the total population that were male (48%) or female (52%). There were a disproportionate number of male offenders. When the above years were examined individually it was also found that a greater percentage of offenders were male in each year. For instance, in 2001 89% of offenders were found to be male and 11% female. In 2002, 82.9% of offenders were male and 17.1% were female, and in 2003, 88.5% were male and 11.5% female.

6.2.2: Offender's Age

Figure 6.1 illustrates how the majority of offenders, for 2001-2003, were aged between 15-19 years (44.9%). The overall percentage of Cantabrians in each age group was calculated with the greatest percentage of people being aged over forty years (43.2%). The smallest percentage of the population was aged between 10 to 14 years (6.7%), followed closely by people aged 15 to 19 years (7.4%), illustrating that there was a disproportionate percentage of young people offending. The distribution of offenders by age group was also consistent for each individual year. For example, the highest percentage of offenders were aged between 15-19 years and the smallest percentage of offenders were aged over forty years (Figure 6.2).

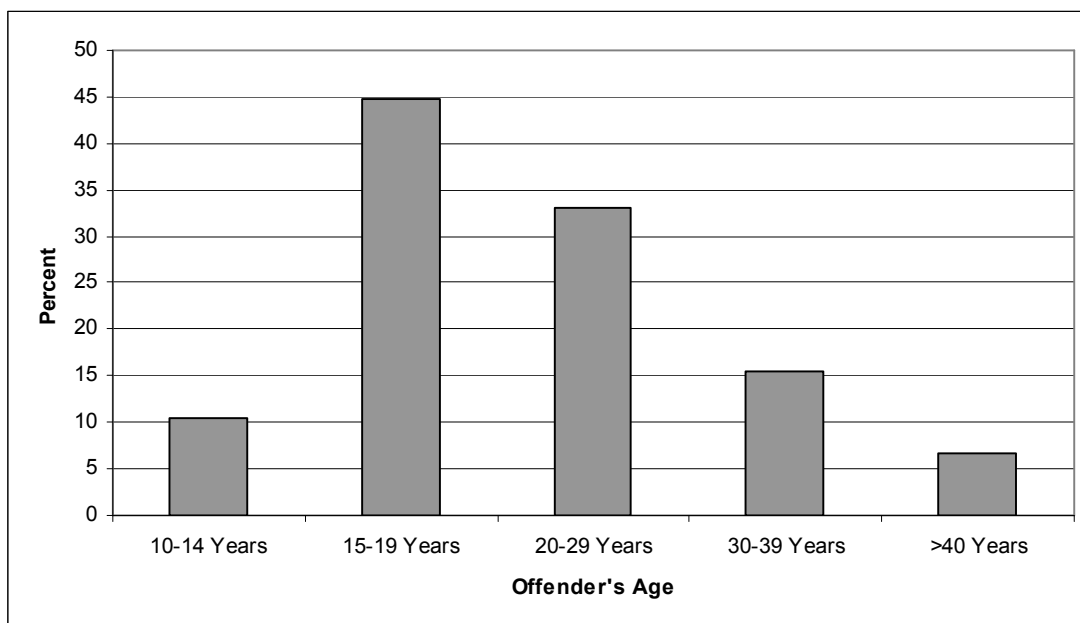


Figure 6.1: Percentage of Offenders by Age for Christchurch (2001-2003)

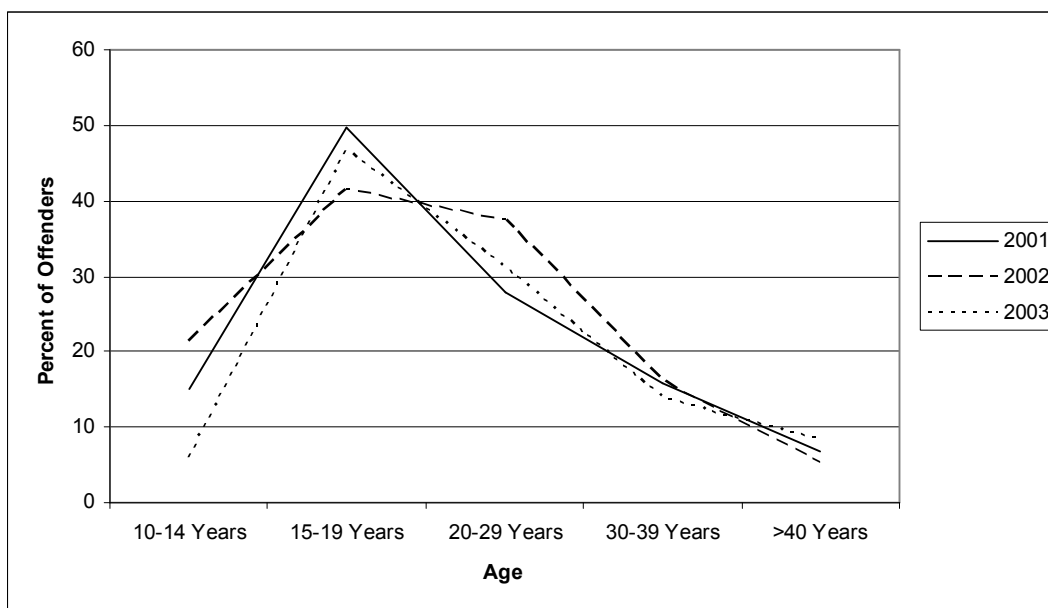


Figure 6.2: Percentage of Offenders by Age for Christchurch for the period 2001-2003

6.2.3: Offender's Ethnicity

The greatest majority of offenders for the study period (2001 to 2003) were European at 51.9%, 38.7 % were Maori and 9.4 % were of 'other' ethnicities (such as Pacific Islanders, Asians, and African Americans) (Figure 6.3). A similar trend was noted when the percentage of offenders by ethnicity was calculated for each individual year. The percentage of the total Christchurch population in each ethnic group was also calculated. The greatest percentages of Cantabrians were European (82.7%) followed by 'other' ethnicities (10.8%) and the smallest percentage of Cantabrians were Maori (6.5%), illustrating a disproportionate percentage of Maori offenders and offenders of 'other' ethnicities. In examining each year individually, it was found that the percentage of offenders who were European decreased from 2001 to 2003, and the percentage of offenders who were Maori or of 'other' ethnicities increased over that period. More specifically in 2001, 58.4% of offenders were European, 36.3% were Maori and 5.3% were of 'other' ethnicities. The percentage of European offenders in 2002 decreased from 2001 (51.7%), the percentage of Maori offenders increased (38.8%) as did the percentage of offenders who were of 'other' ethnicities (9.5%). The percentage of offenders of 'other' ethnicities increased markedly in 2003 (14.1%) whilst the percentage of European

offenders decreased again (47.6%) and the percentage of Maori offenders also decreased very slightly (38.3%).

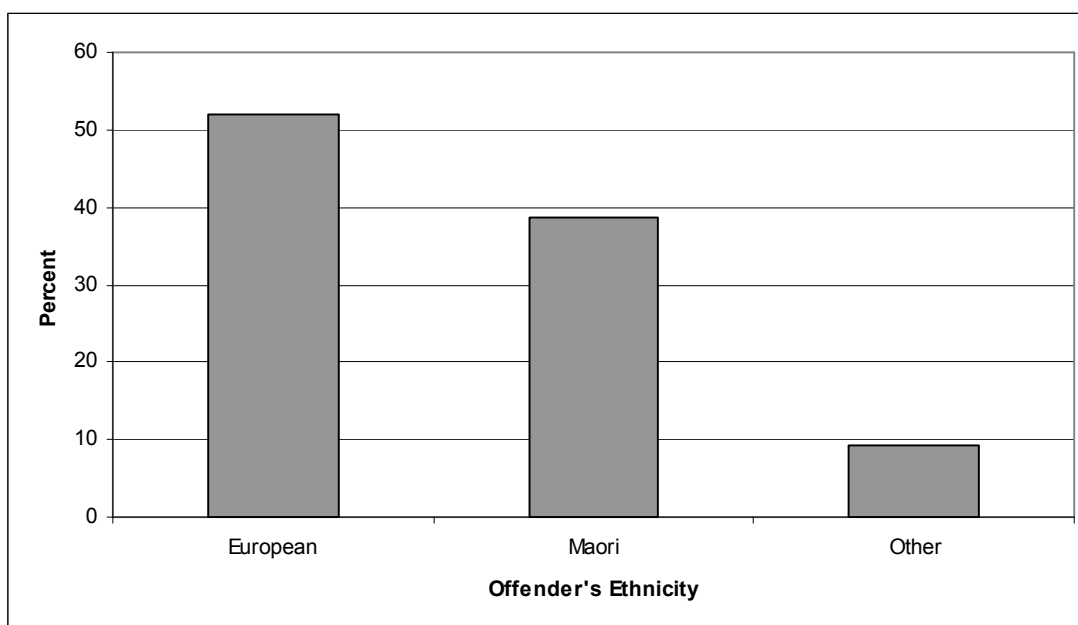


Figure 6.3: Percentage of Offenders by Ethnicity for Christchurch (2001-2003)

6.2.4: Offender's Occupation

The percentages of offenders who were unemployed, sickness beneficiaries, students or in various forms of employment were analysed. Figure 6.4 illustrates that, for the period 2001-2003, the greatest percentage of offenders were unemployed (43.9%), 11.4% were students (predominately secondary school students), 6.0% were sickness beneficiaries and 38.7% had other occupations. Other occupations include, for example, Labourer, Furniture Mover, Prostitute, Taxi Driver, Sports Coach or Sales Assistant. The percentage of offenders by occupation was calculated for each year individually. The percentage of offenders who were unemployed or sickness beneficiaries increased from 2001 to 2003 (from 41.1% to 48.7% for unemployed, and from 4.6% to 7.3% for sickness beneficiaries). The percentage of offenders who were students decreased (from 14.6% to 6.8%), as did the percentage of offenders who had other occupations (from 39.7% to 37.2%).

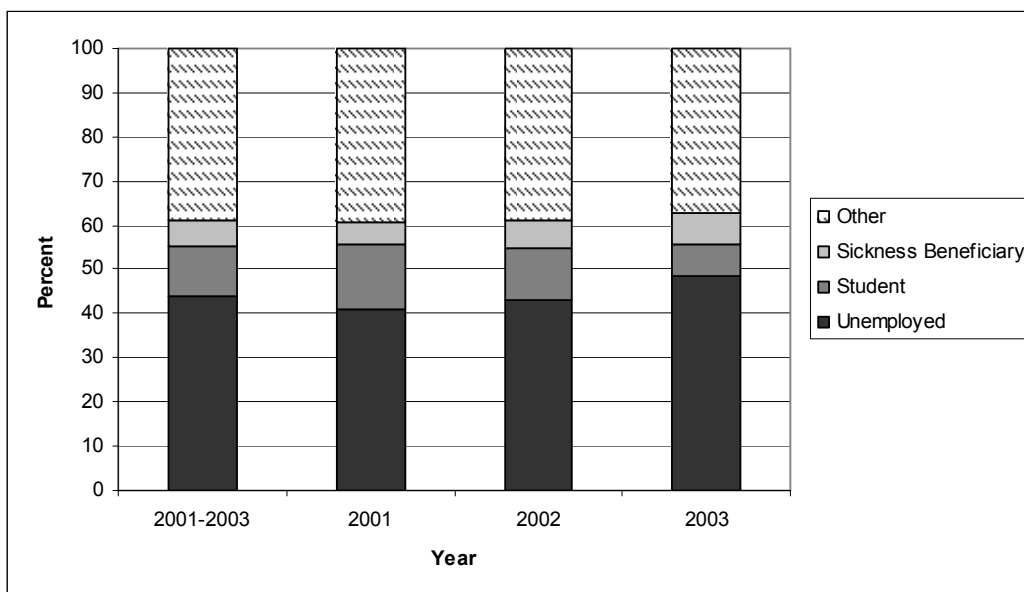


Figure 6.4: Percentage of Offenders by Occupation for Christchurch (2001-2003)

6.2.5: Deprivation Deciles of Offender' Address

The offender's address was geocoded by locating the x-y coordinates of the addresses of the offenders. These coordinates were then spatially joined to a meshblock then to a census area unit (CAU). The maps display the percentage of offenders in each CAU (see Figure 5.2 for locality map). The results regarding the offender's address illustrated that, for the study period (2001-2003), there was a distinct spatial pattern to where offenders live (Figure 6.5). The highest percentage of offenders were found to be located along the central corridor and in the north-eastern suburbs. Suburbs with a high percentage of offenders were Hornby, Shirley, New Brighton, Aranui, Linwood, Phillipstown and Opawa. The southern and north-western suburbs had smaller percentages of offenders such as Cashmere, Westmorland, Yaldhurst, Halswell and Sumner. This spatial distribution was broadly consistent for each of the individual years. More specifically, in 2001 Hornby had a higher percentage of offenders, as did Aranui and Linwood (Figure 6.6). Hornby also had a high percentage of offenders living there in 2002 (Figure 6.7). Other areas with a high percentage of offenders include New Brighton, Heathcote, Marshland and Shirley. The highest percentage of offenders in 2003 was located in similar suburbs to those in 2002, including Woolston and Opawa (Figure 6.8).

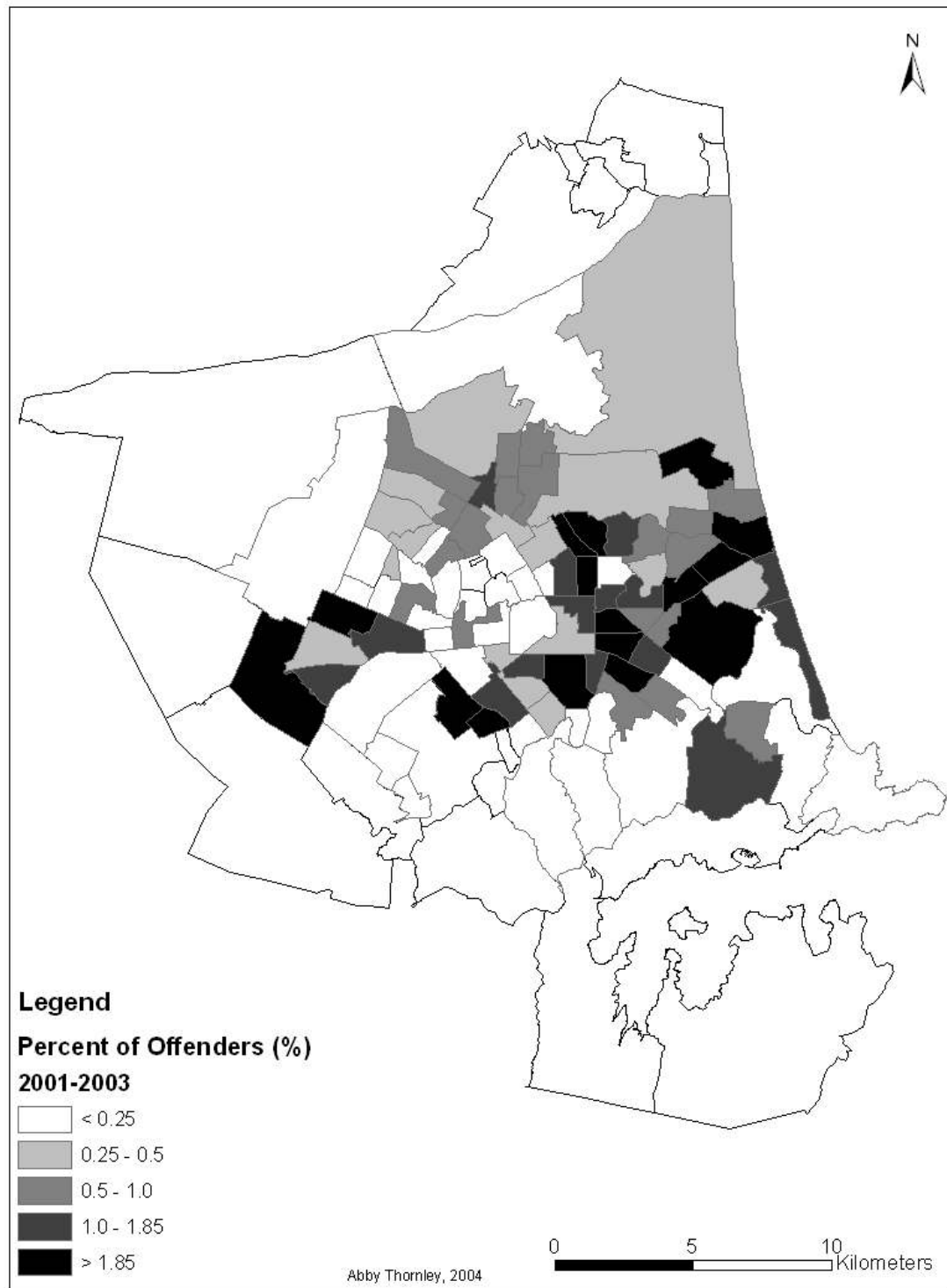


Figure 6.5: Percentage of Offenders in each CAU for Christchurch (2001-2003)

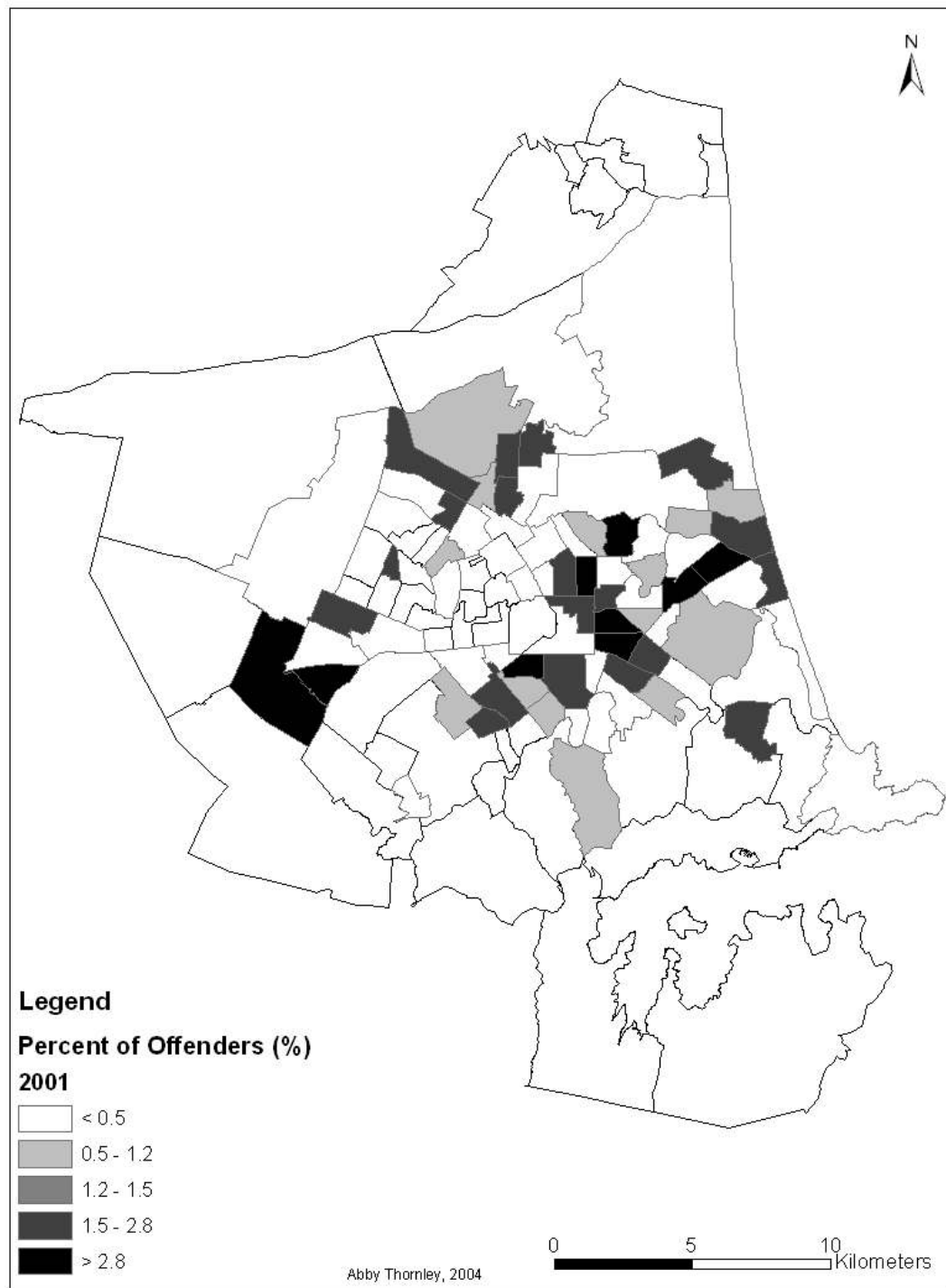


Figure 6.6: Percentage of Offenders in each CAU for Christchurch 2001

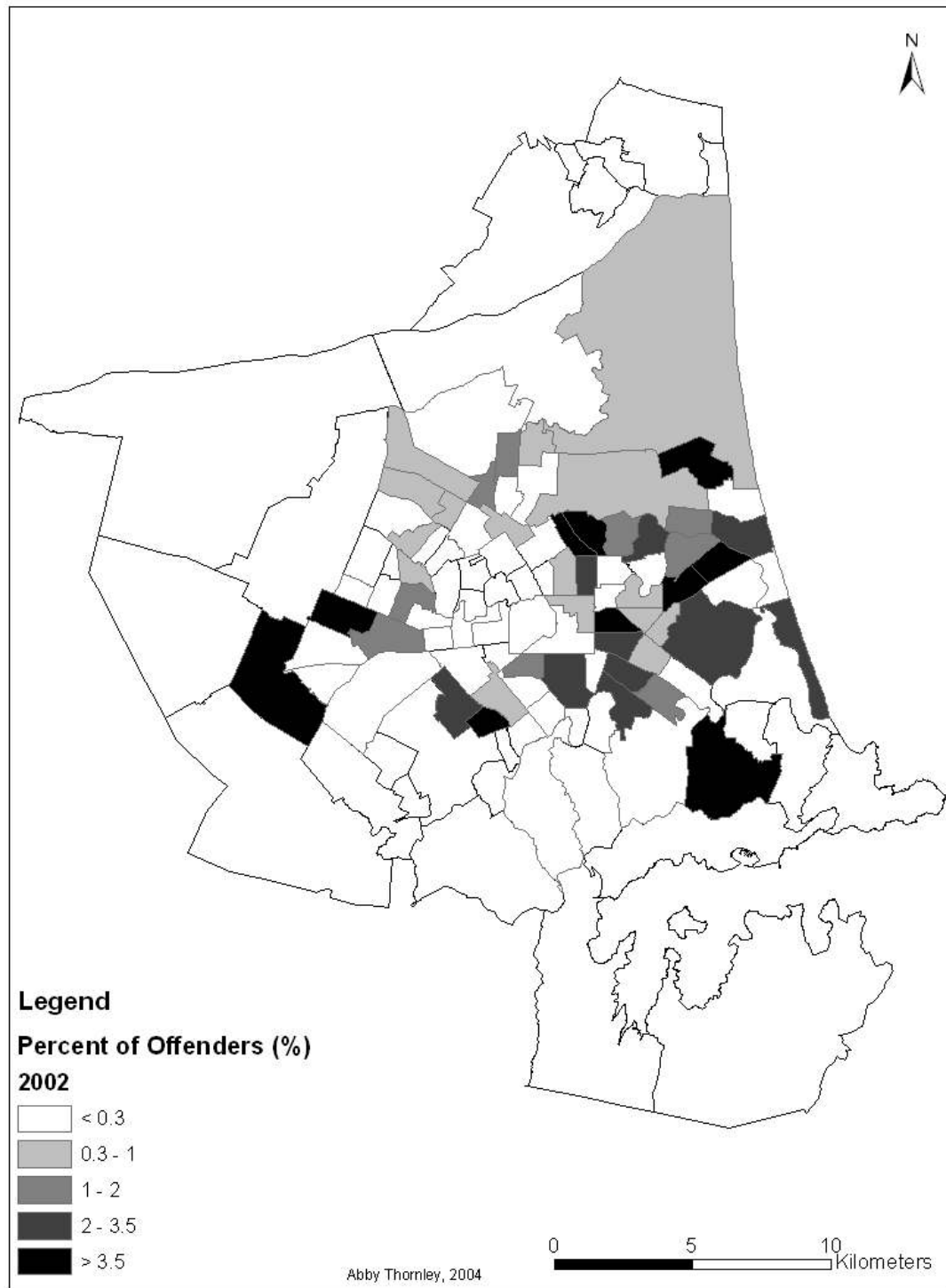


Figure 6.7: Percentage of Offenders in each CAU for Christchurch 2002

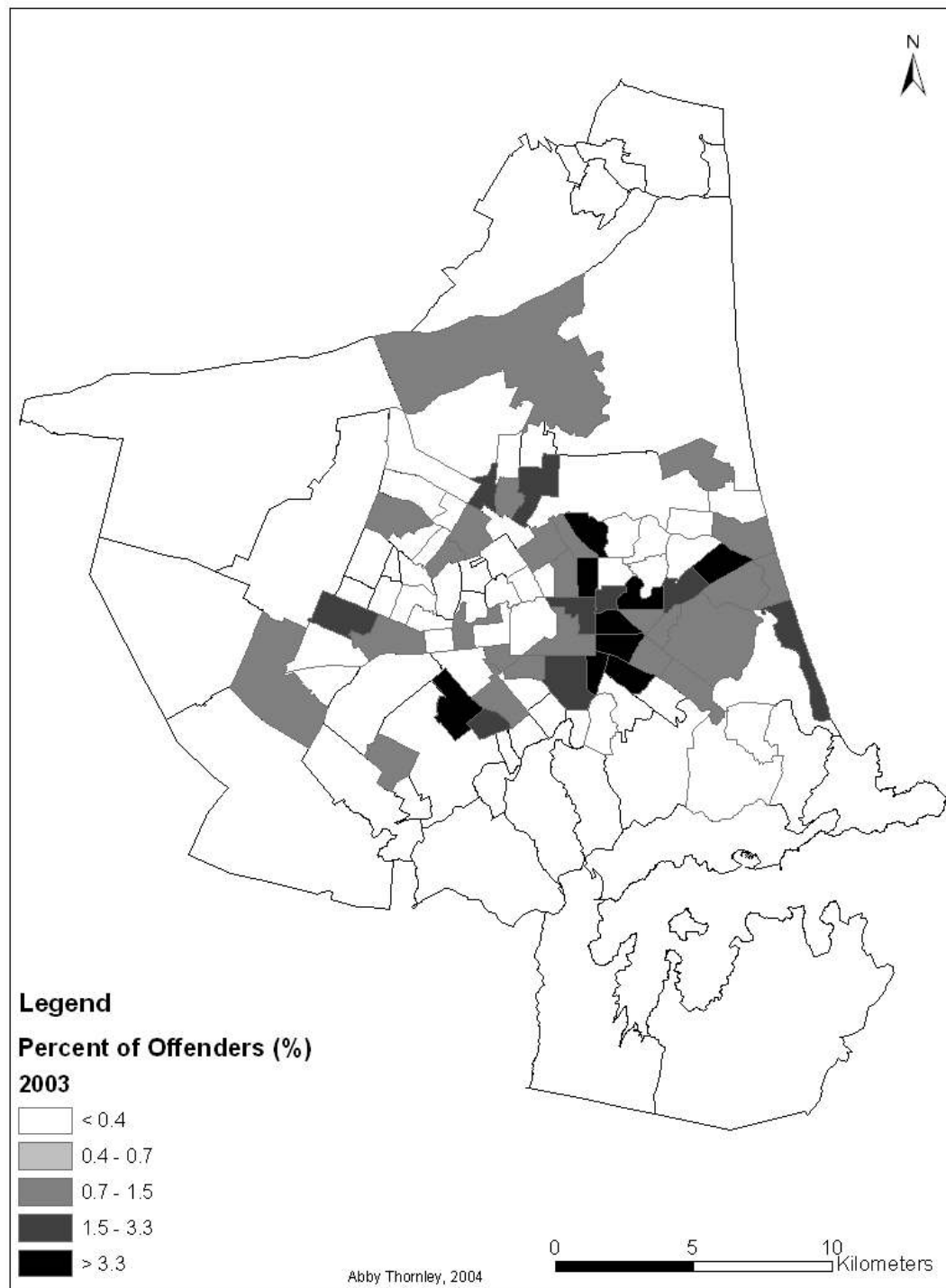


Figure 6.8: Percentage of Offenders in each CAU for Christchurch 2003

The offender's address was correlated with the continuous NZDep 2001 Decile of the CAU in which the offender lived for the entire study period (Figure 6.9). The relationship between percentage of offenders and NZDep 2001 Decile was found to be positive (Pearson correlation=0.49). The graph illustrates that there were three outlying CAUs in deprivation decile nine where 16.3% of the offenders lived; Aranui (6.8%), Phillipstown (5.1%) and Linwood (4.4%). The percentage of offenders by discrete NZDep 2001 Decile was calculated, in order to allow the comparison of percentage of offenders between each year (Table 6.1). Figure 6.10 illustrates the percentage in each NZDep 2001 Decile for each year and all combined. For the entire study period deprivation decile nine was found to have the highest percentage of offenders (25.6%) and deprivation decile one the lowest (1.9%). The relationship between percentage of offenders and deprivation was relatively consistent, increasing from deprivation deciles one to six (1.9% to 10.1%). The percentage of offenders then decreased in deprivation seven (8.8%), however the percentage of offenders increased drastically for deprivation decile eight and nine (19.6% to 25.6%), but decreased considerably again at deprivation decile ten (17.8%).

The relationship between the percentage of offenders and deprivation was broadly consistent for the period 2001 to 2003 as in each of the years, the number of offenders decreased from deprivation decile nine to decile ten. There was some variation between the years. 2003 had the strongest relationship between the offenders and deprivation whilst 2002 had the weakest (Pearson correlation = 0.52 and 0.20 respectively). A further example of these correlations is that the percentage of offenders in 2001 increased abruptly at deprivation decile three and then decreased again at deprivation decile four. In 2002, whilst the percentage of offenders increased in deprivation decile five to deprivation decile six, the percentage of offenders then decreased in decile seven. In 2003, there was a small increase in the percentage of offenders from deprivation decile three to four, which then dropped again in deprivation decile five.

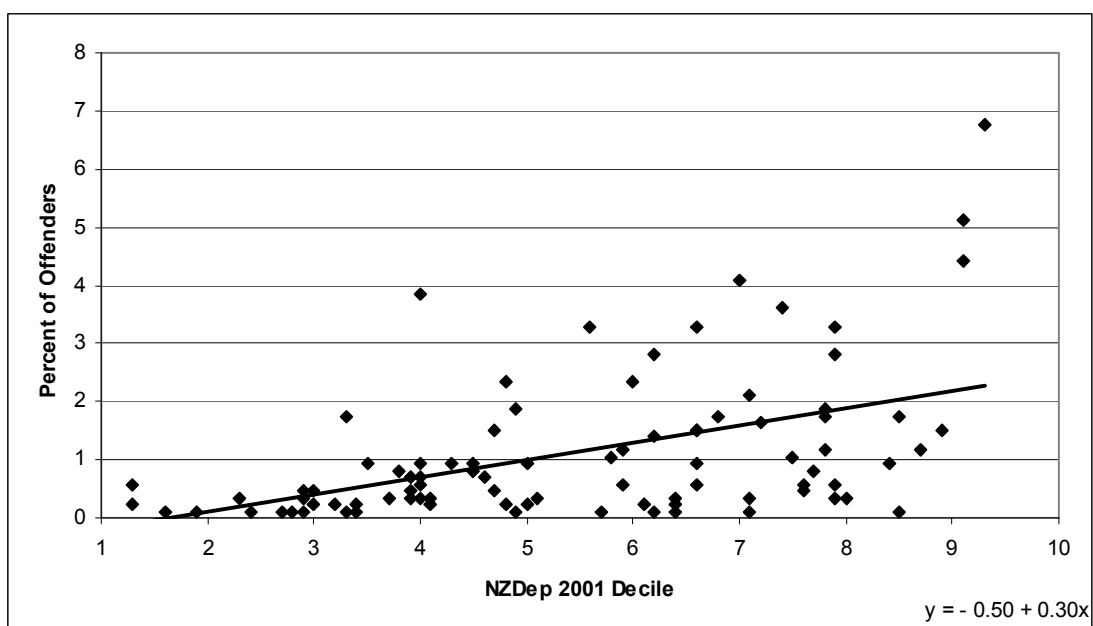


Figure 6.9: Percentage of Offenders by Continuous NZDep 2001 Decile for Christchurch (2001-2003)

Table 6.1: Count and Percentage of Offenders in each NZDep 2001 Decile for Christchurch (2001-2003)

NZDep 2001 Decile	Number of Offenders	Percentage of Offenders
1	15	1.8%
2	17	2.0%
3	37	4.3%
4	26	3.0%
5	62	7.2%
6	113	13.2%
7	67	7.8%
8	173	20.2%
9	204	23.8%
10	143	16.7%
Total	857	100%

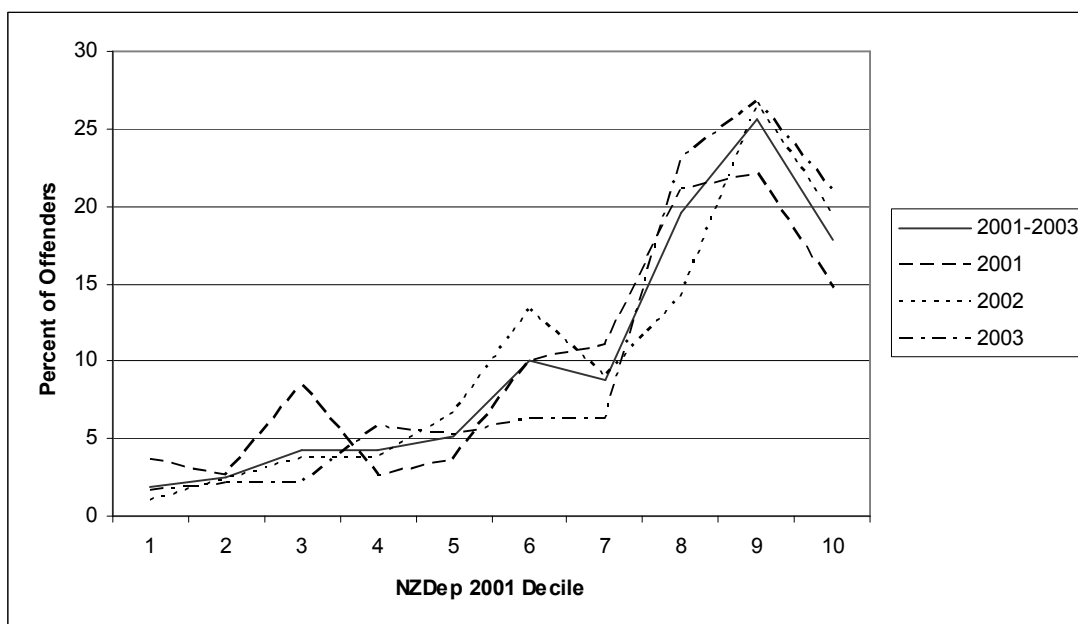


Figure 6.10: Percentage of Offenders by NZDep 2001 Decile for Christchurch for the period 2001 -2003

6.2.6: Number of Burglaries Committed by Offenders

The percentage of offenders categorised by the number of burglaries they committed is presented in Figure 6.11. The largest percentage of offenders, for the period 2001-2003, only committed one burglary (79.2%), 17.4% of offenders committed two to four burglaries, 2.3% committed five to nine burglaries and 1.8% committed more than 10 burglaries.

The analysis of the percentage of offenders by the number of burglaries they committed for each year individually shows a similar relationship (Figure 6.12). The results show that the percentage of offenders committing only one burglary decreased between 2001 and 2003 (from 79.0% to 72.8%). The increase in offenders committing between two and four burglaries constituted the largest percentage of offenders in the study period (2001-2003) with a rise from 17% to 20.9%. The difference in the percentage of offenders decreases as the number of burglaries increases.

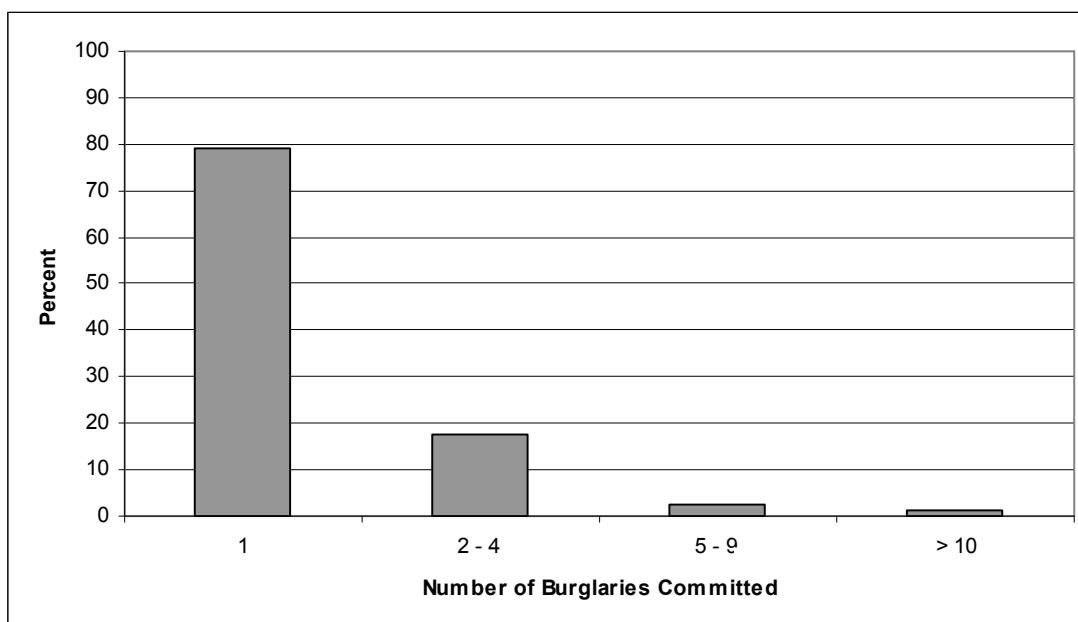


Figure 6.11: Percentage of Offenders by Number of Burglaries Committed for Christchurch (2001-2003)

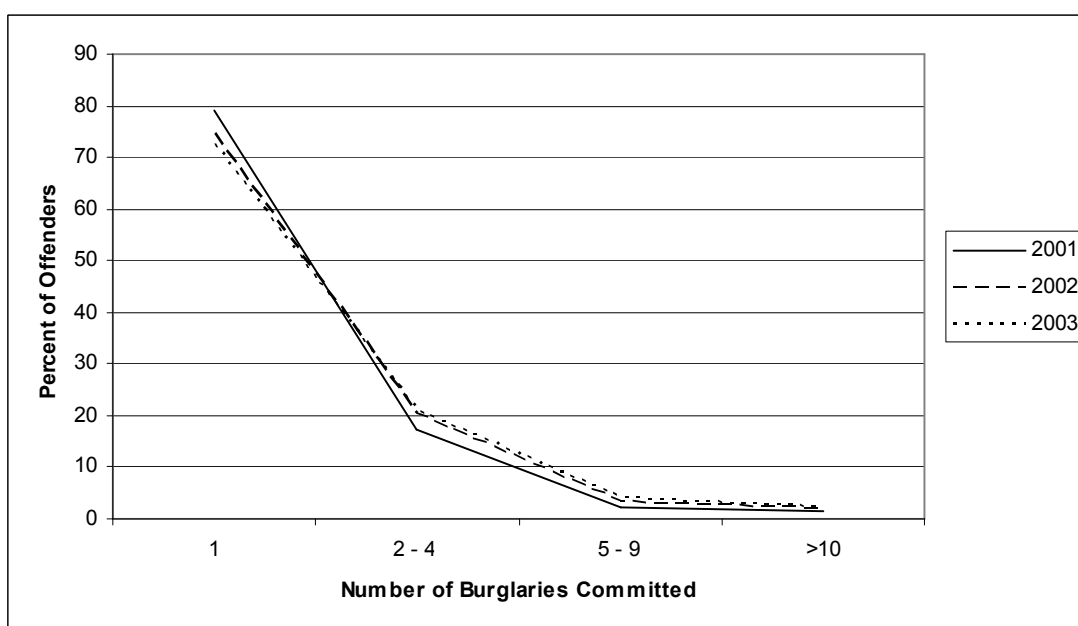


Figure 6.12: Percentage of Offenders by Number of Burglaries Committed for Christchurch for the period 2001-2003

6.2.7: Number of Offenders Committing Each Burglary

In addition to the number of burglaries carried out by each offender, the number of offenders committing each burglary was also examined (Figure 6.13). It was apparent that a greater percentage of offenders committed burglaries alone (75%) compared to less than 20% for burglaries committed by two or more offenders. The percentage of burglaries committed, categorised by the number of offenders per burglary, was analysed for each individual year (2001 to 2003) (Figure 6.14). There was an increase in the percentage of offenders committing burglaries alone from 2001 to 2003. Conversely, there was a decrease in the percentage of offenders committing burglaries in groups of two or more.

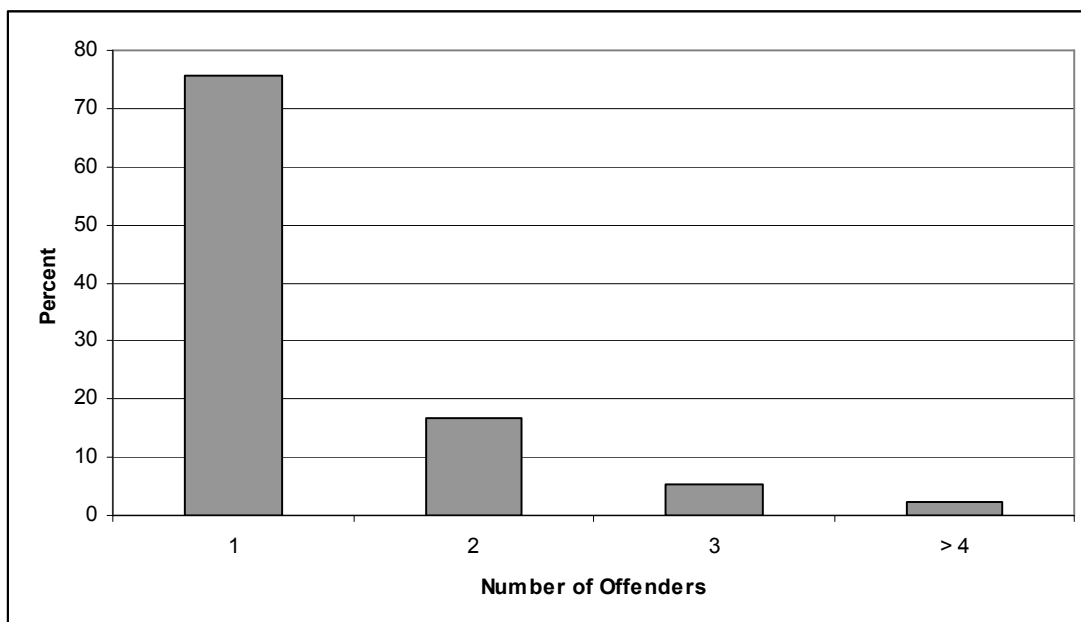


Figure 6.13: Percentage of Burglaries by Number of Offenders Committing each Burglary for Christchurch (2001-2003)

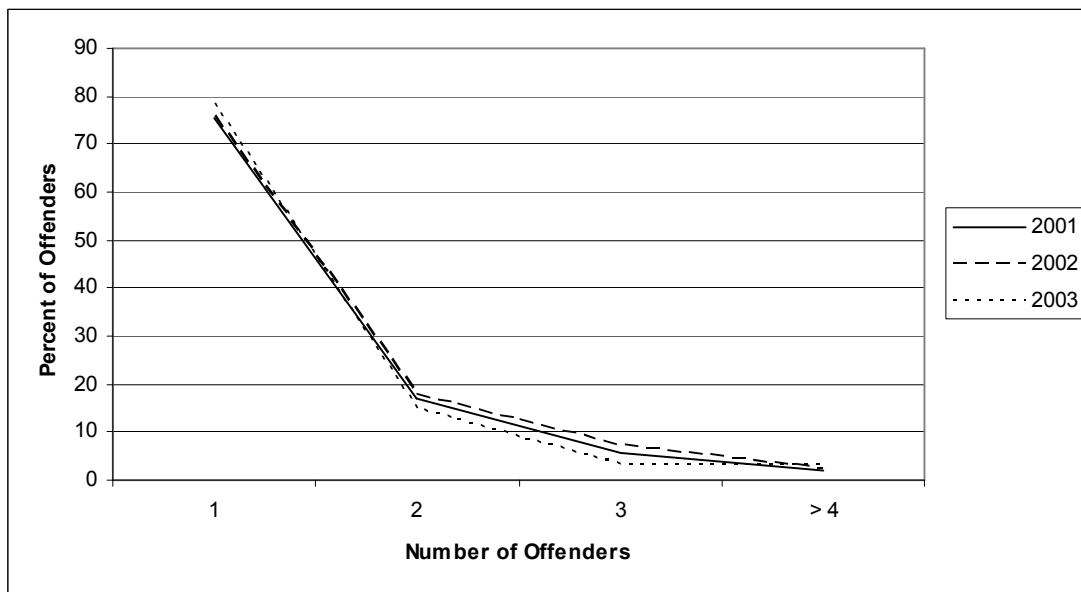


Figure 6.14: Percentage of Burglaries by Number of Offenders Committing each Burglary for Christchurch for the period 2001-2003

6.2.8: Other Aspects of Burglaries

Another aspect of burglary that was analysed was whether the offenders knew the occupants of the property they burgled. It was found that in 96.9% of burglaries the offender did not know the occupants. Further analysis into whether or not the offender was disturbed was performed resulting in the finding that the offender was disturbed in 4.2% of burglaries.

6.3: When Does the Burglar Strike?

6.3.1: Time of Day

The most common times of the day for burglaries to occur, for the period 2001-2003, was found to be between 1200 and 1300 (6.4%) and between 0000 and 0100 (6.4%) (Figure 6.15). The least common times of the day were between 0600 and 0700 (1.3%) and between 0700 and 0800 (0.6%).

The day was divided into six-hour time slots (2001-2003) in order to examine whether parts of the day have higher burglary rate than others (Figure 6.16). The greatest percentage of burglaries occurred between 1200 and 1800 (30.7%). The next most common time was between 0000 and 0600 (28.0%). It was found that 22.3% of burglaries occurred from 1800 to 0000, with the smallest percentage of burglaries occurring between 0600 and 12:00 (19.0%).

This temporal distribution was generally consistent for 2001 and 2002. However, in 2003 the most common time period was 0000 to 0600 (35.2%), and the least common time for burglaries to occur was between 1800 and 0000 (18.5%) (Figure 6.17). The percentage of burglaries that occurred between 1200 and 1800 decreased from 2001 to 2003, and the percentage of burglaries that occurred between 000 and 0600 increased from 2001 to 2003.

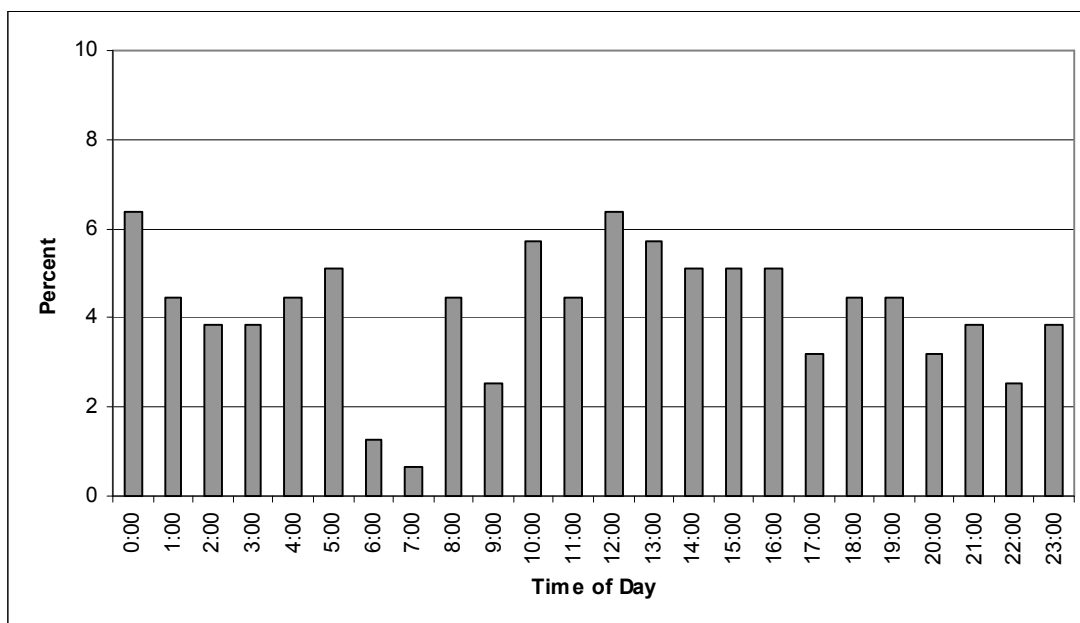


Figure 6.15: Percentage of Burglaries by the Time of Day that they occurred for Christchurch (2001-2003)

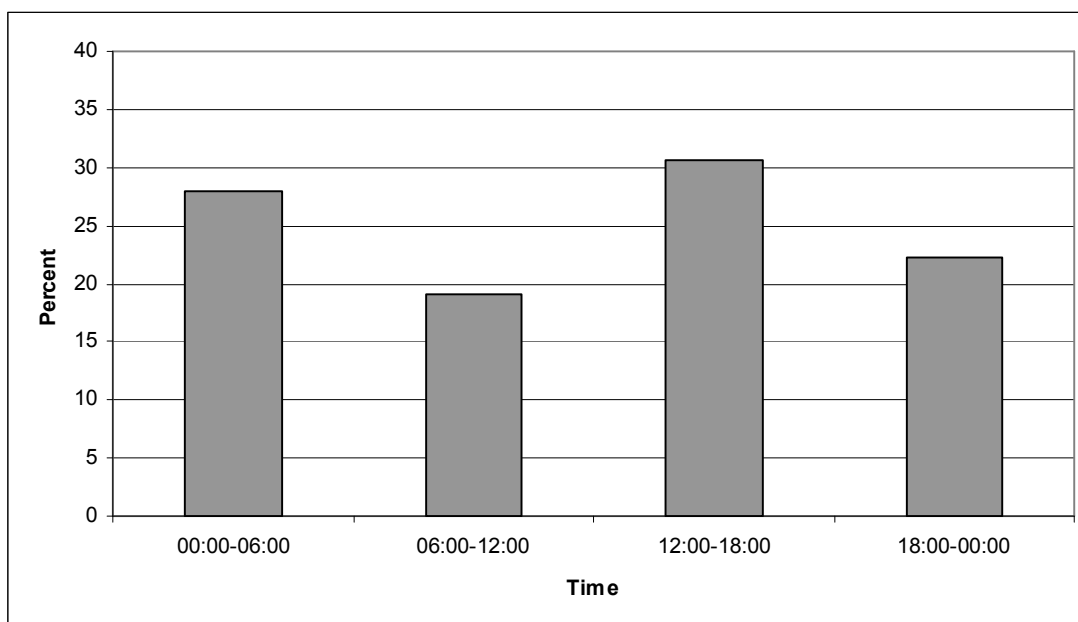


Figure 6.16: Percentage of Burglaries by the Time of Day that they occurred for Christchurch (2001-2003)

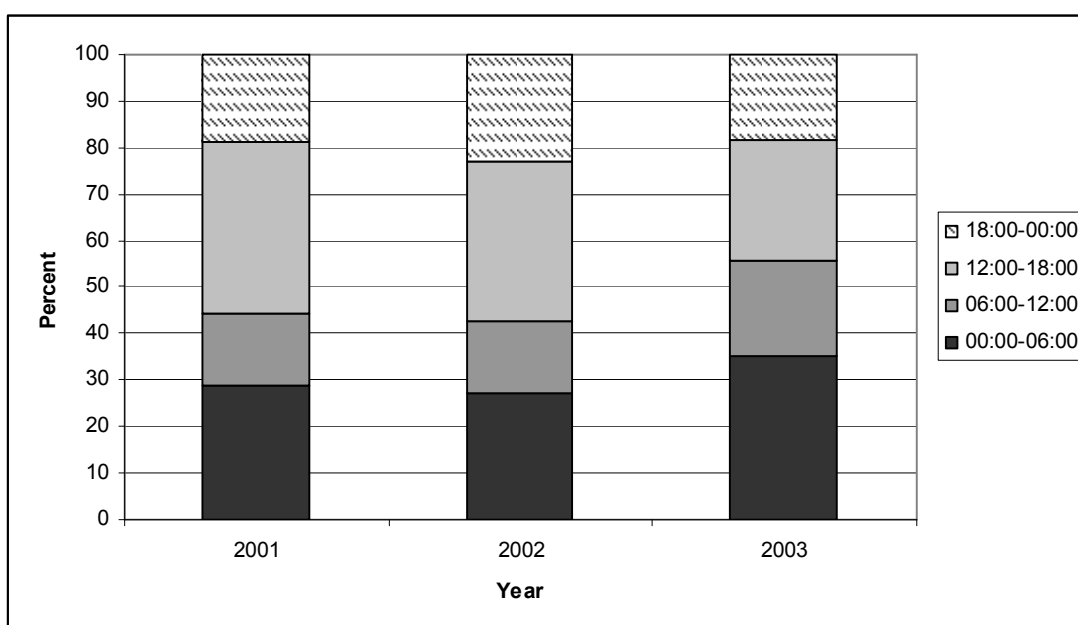


Figure 6.17: Percentage of Burglaries by the Time of Day that they occurred for Christchurch for the period 2001-2003

6.3.2: Day of Week

In addition to the time of day that burglaries occur, the day of the week was also examined (Figure 6.18). The most common day for burglaries to occur, for the study period (2001-2003), was found to be a Friday (17.1%), closely followed by Monday (16.8%). The smallest percentage of burglaries occurred on a Sunday (9.9%), with the second smallest percentage of burglaries occurring on a Saturday (11.3%). The day of the week that these burglaries occurred was then compared to the NZDep 2001 Decile (Figure 6.19). These results show that properties in deprivation decile one were most likely to be burgled on a Wednesday (24.6%) and least likely to be burgled on a Saturday or Sunday (6.6% on each day). Properties in decile five were most likely to be burgled on a Tuesday (22.2%) and least likely to be burgled on Sunday (2.8%). Decile 10 properties were most likely to be burgled on a Wednesday (24.5%) and least likely to be burgled on a Tuesday and Sunday (6.1% on each day). Overall, the least common days for burglaries to occur in the majority of deprivation deciles were Saturdays and Sundays. The most common days of the week for burglaries to occur in the majority of deprivation deciles were from Wednesday to Friday.

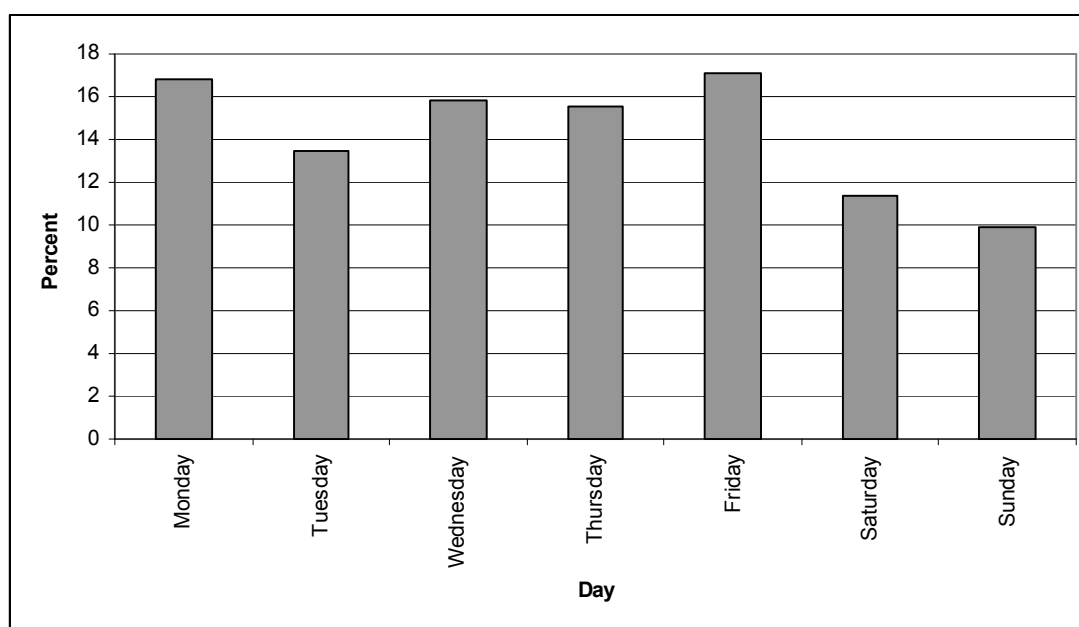


Figure 6.18: Percentage of Burglaries by the Day that they occur for Christchurch (2001-2003)

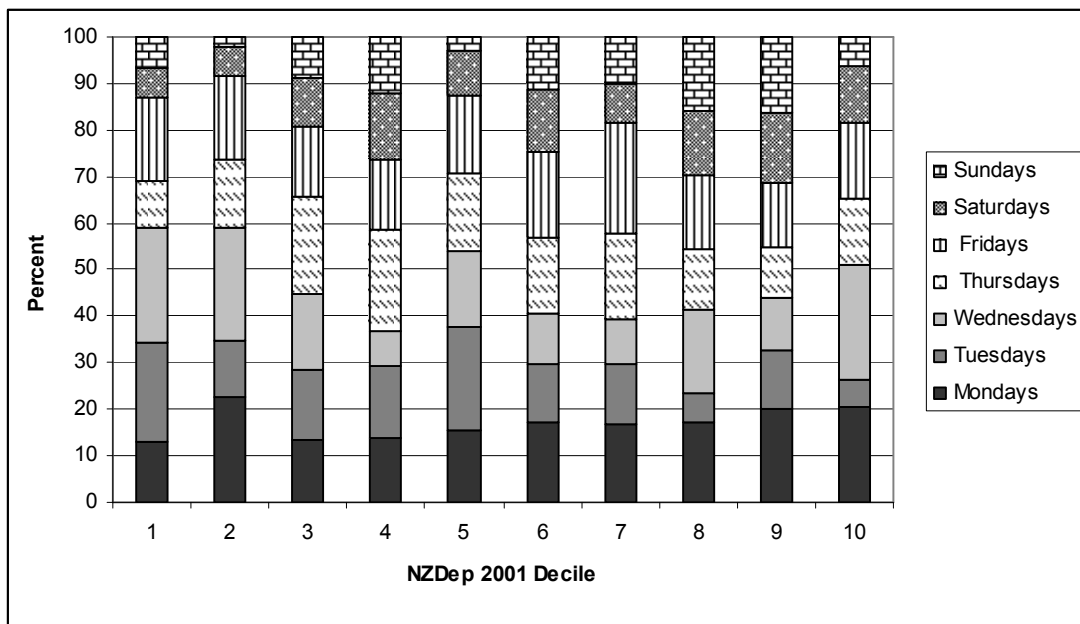


Figure 6.19: Percentage of Burglaries occurring on each day by NZDep 2001 Decile for Christchurch for the period 2001-2003

6.3.3: Month of Year

Seasonal trends in burglary rates were examined with the aim of identifying macro-scale temporal trends. Thus, the percentage of burglaries committed each month was calculated for the entire study period (2000/2001 to 2002/2003) (Figure 6.20). Overall, there were no apparent strong seasonal patterns in burglaries in Christchurch. The highest percentage of burglaries occurred in August (9.3%), closely followed by May (9.0%) and July (8.8%). The smallest percentages of burglaries occurred in February (7.3%).

The percentage of burglaries per month was also calculated for each year individually (Figure 6.21, Figure 6.22). In 2000/2001, September had the highest percentage of burglaries (9.7%). For 2001/2002, the highest percentage of burglaries occurred in March (9.3%). The highest percentage of burglaries for 2002/2003 occurred in August (9.8%). The

percentage of burglaries was also calculated for each season for the entire study period and each individual year (Figure 6.23). Winter had the highest percentage of burglaries occurring (26.1%) for the entire study period 2001-2003. In 2000/2001 the season when the highest percentage of burglaries occurred was also winter (27.4%). Spring had the highest percentage of burglaries occurring in 2001/2002 (25.6%). In 2002/2003 autumn was the season with the highest percentage of burglaries occurring (27.0%).

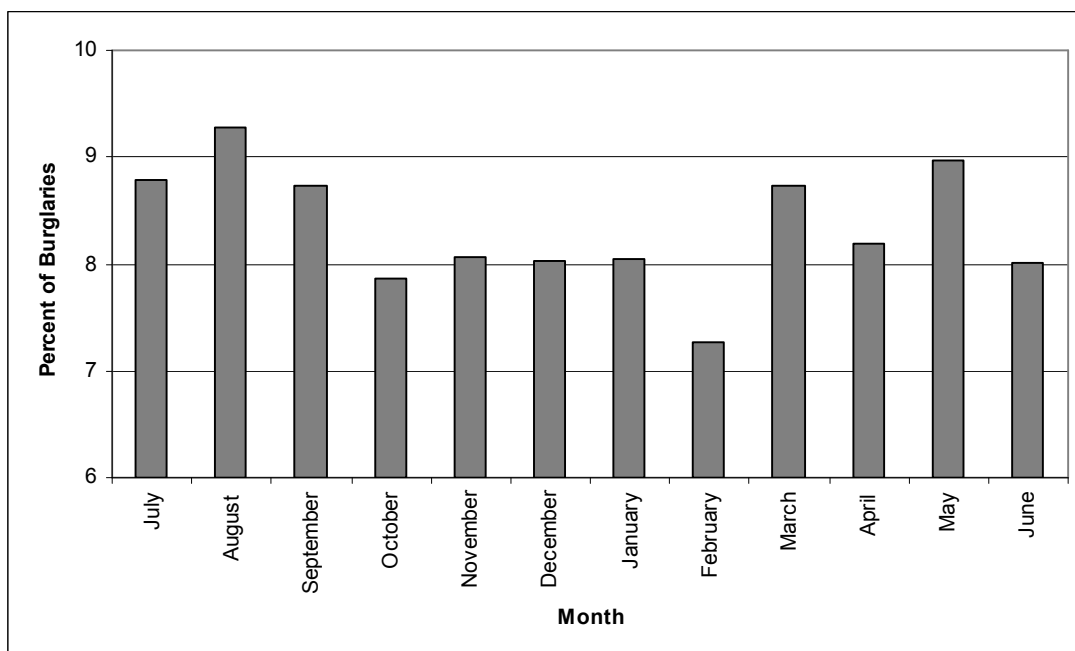


Figure 6.20: Percentage of Burglaries Committed each Month for Christchurch (2000-2003)

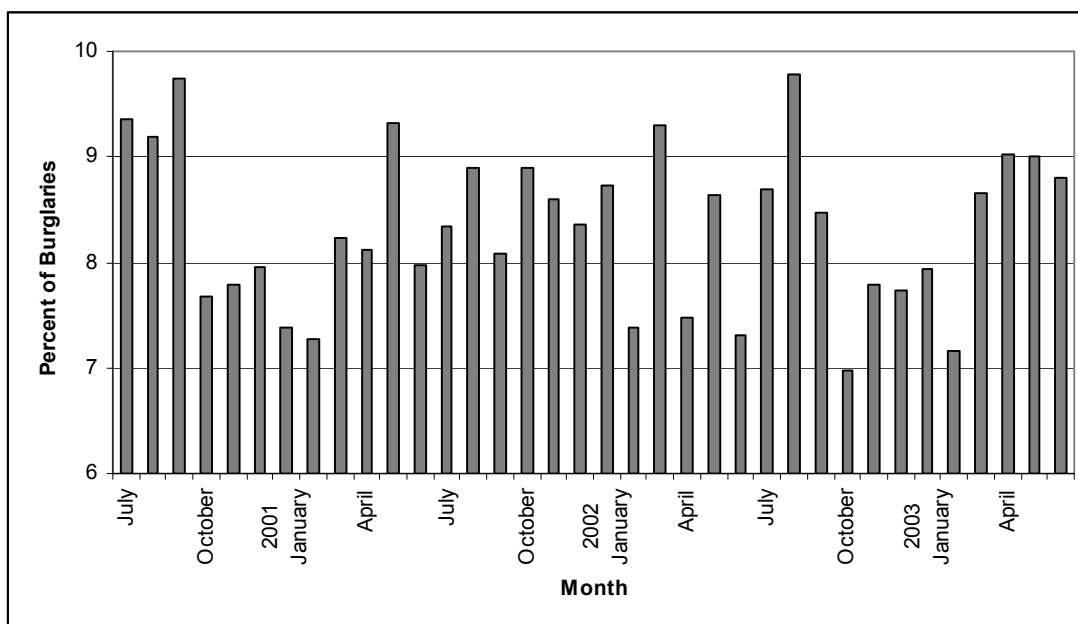


Figure 6.21: Percentage of Burglaries by Month for Christchurch for the period 2000-2003

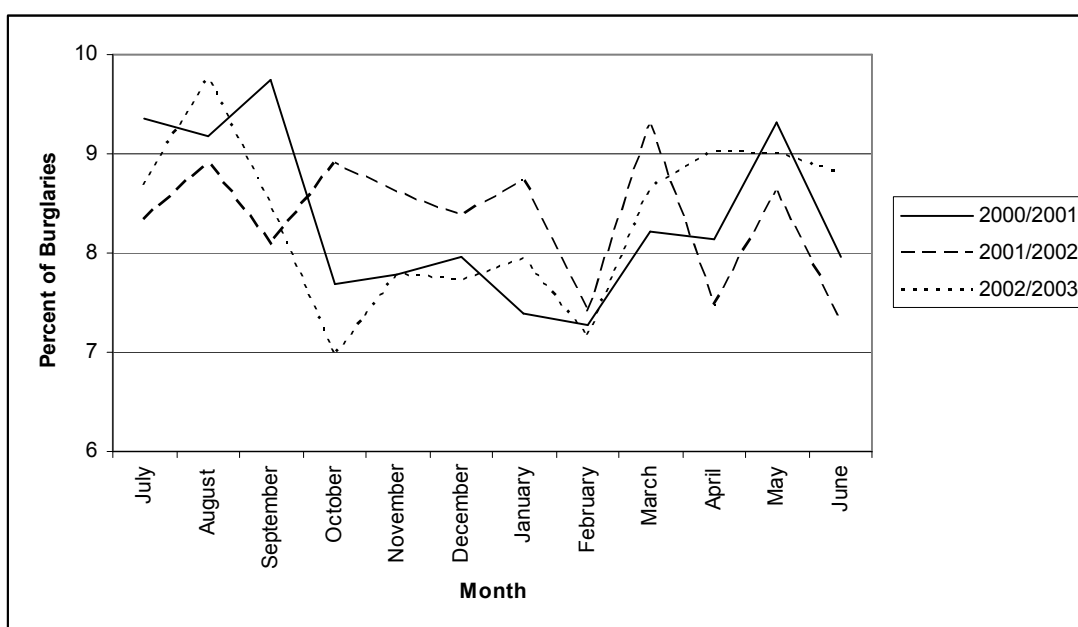


Figure 6.22: Percentage of Burglaries Committed each Month for Christchurch for the period 2000/2001-2002/2003

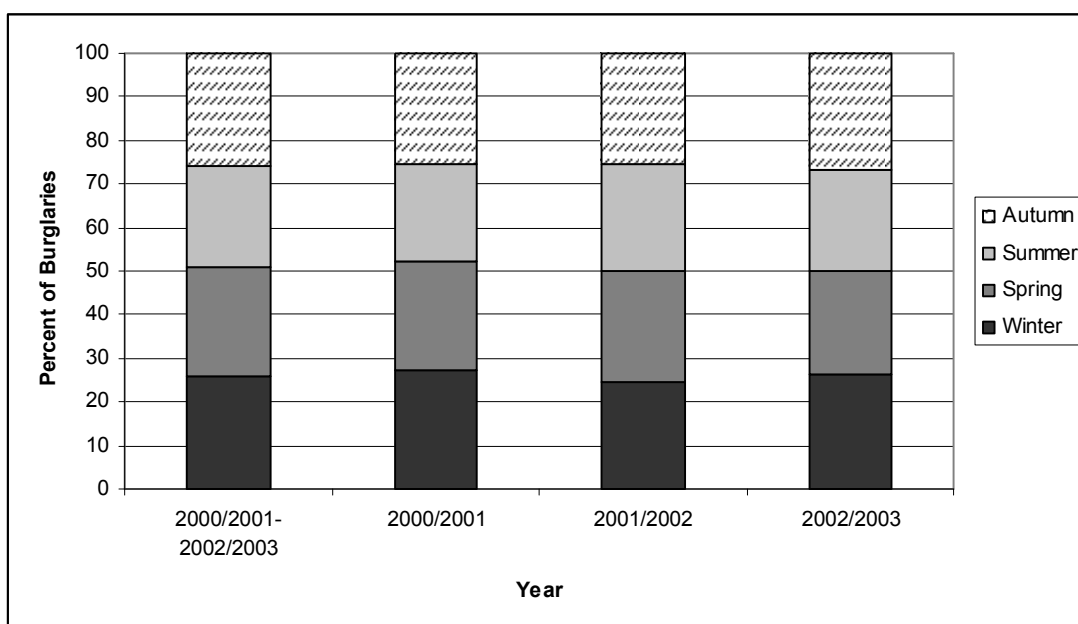


Figure 6.23: Percentage of Burglaries Seasonally for Christchurch for the period 2001-2003

The absolute changes in percentage of burglaries committed each month were calculated between each of the individual years as was the absolute overall changes for each month from 2000/2001 to 2002/2003 (Figure 6.24). The graph of the absolute overall change illustrated that April and June (0.9 and 0.8 respectively) had the largest increases in percentage of burglaries per month. July and October (-0.7 each) had the largest decrease in percentage of burglaries per month. There were no clear trends in the changes between the years regarding the percentage of burglaries in each month. The changes in the percentage of burglaries per month between the individual years also showed no consistent trends. For example, for the absolute changes in the percentage of burglaries per month between 2000/2001 and 2001/2002 January and October (1.3 and 1.2 respectively) had the largest increases and September and July (-1.7, -1.0 respectively) had the largest decreases. The months with the largest increases in the percent of burglaries occurring between 2001/2002 and 2002/2003 were April and June (1.6 and 1.5 respectively), and the months with the largest decrease were October and November (-1.9 and -0.8 respectively).

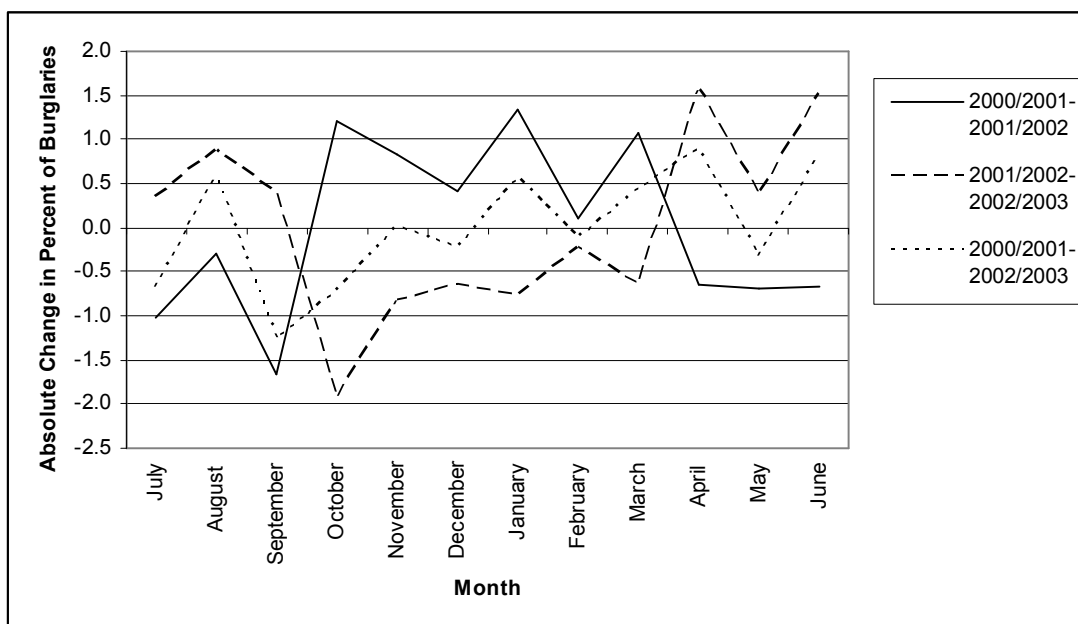


Figure 6.24: Absolute Changes in Percentages of Burglaries per Month between each year for the period 2000/2001 to 2002/2003

6.4: How Does the Burglar Enter?

The methods of entry, used by offenders to enter a property, were divided into six categories. These categories were, through sliding doors, pushing past occupants, through unsecured entry points, using a key, through secured entry points and by 'other' methods. 'Other' methods were the most common method of entry (49.4%), however 'other' methods involved a variety of methods such as the offender may have lived at the address but stole items as they moved out. Alternatively, the offender was invited to the residence and stole items while they were there. The most common single method of entry for 2001-2003 was gaining entry through a secured entry point (26.1%). Secured entry points include entering by breaking a window or jemmying a lock on windows or doors (Figure 6.25). The next most common single method of entry was where entry was gained by use of a key (12.5%); in 9.4% of cases, the offender gained entry by unsecured entry points, such as open or unlocked windows or doors. In only 1.9% of cases, the offender actually pushed past the occupants in order to enter. This distribution among entry methods is similar for the years 2001, 2002, and 2003. Only 2.8% of burgled properties had security alarms at the time of burglary.

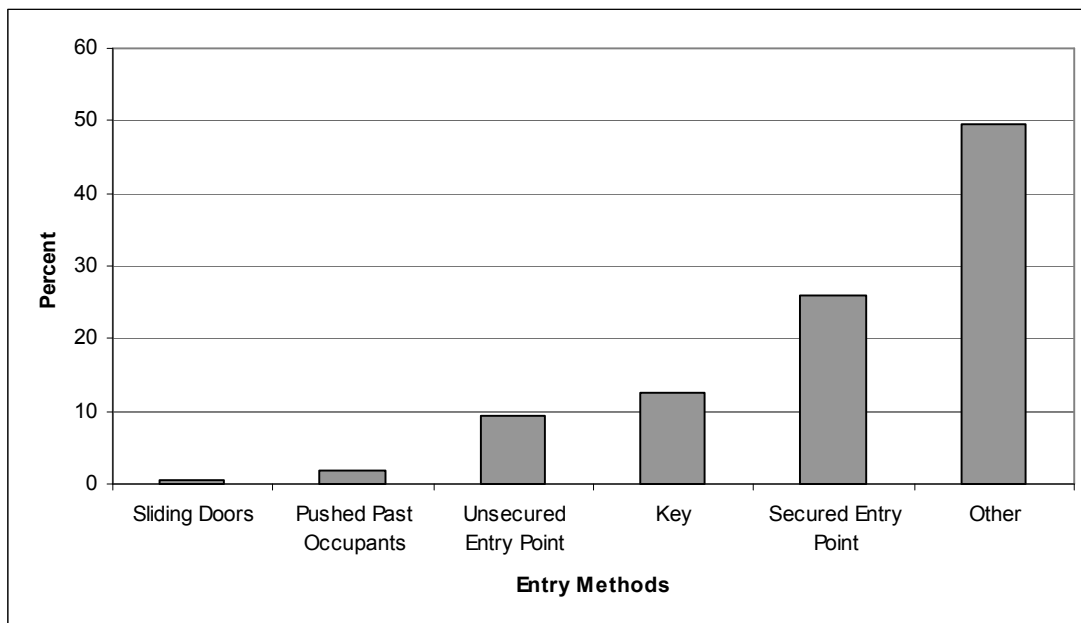


Figure 6.25: Entry Methods Used by Offenders to Gain Entry to Burgled Properties for Christchurch (2001-2003)

6.5: What Does the Burglar Take?

The value and the types of goods stolen in each burglary, where this information was available (in 33% of burglaries), was analysed. In the largest percentage of burglaries, goods valued at between \$1 and \$500 (28.3%) were stolen (Figure 6.26). In the smallest percentage of burglaries, goods valued at between \$3000 and \$4000 (9.0%) was stolen. Figure 6.27 illustrates the percentage of burglaries, by the value of goods stolen, for each year individually. It demonstrates that in 2001 in the largest percentage of burglaries between \$1 and \$500 (36.5 %) worth of goods were stolen. In 2002 and 2003, the largest of percentage of burglaries had goods valued at more than \$4000 stolen (27.4 % and 28.3 % respectively).

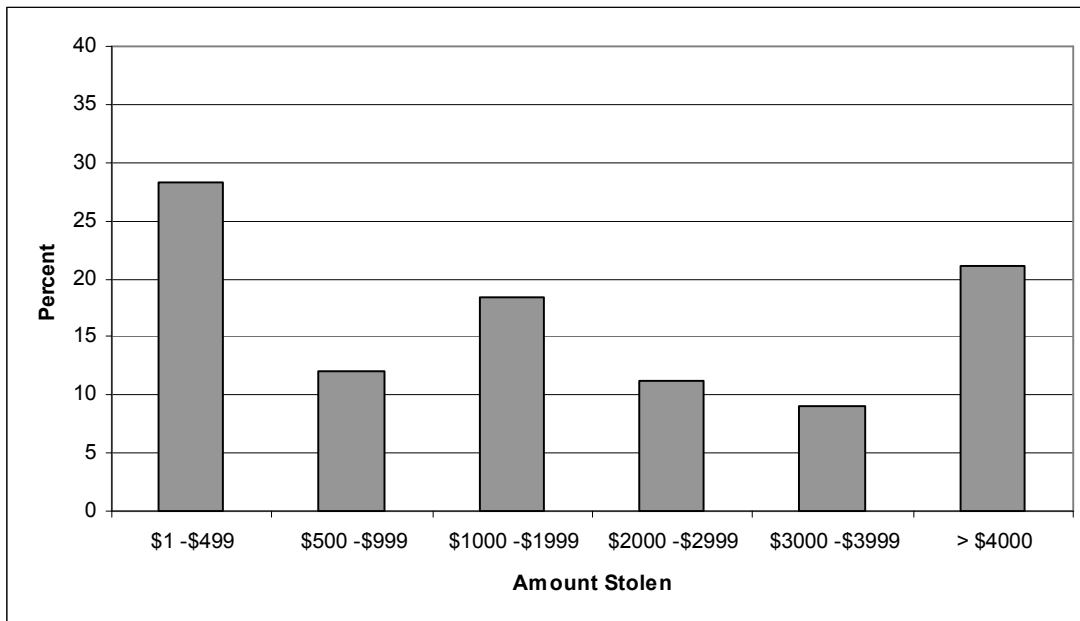


Figure 6.26: Percentage of Burglaries by Amount Stolen for Christchurch (2001-2003)

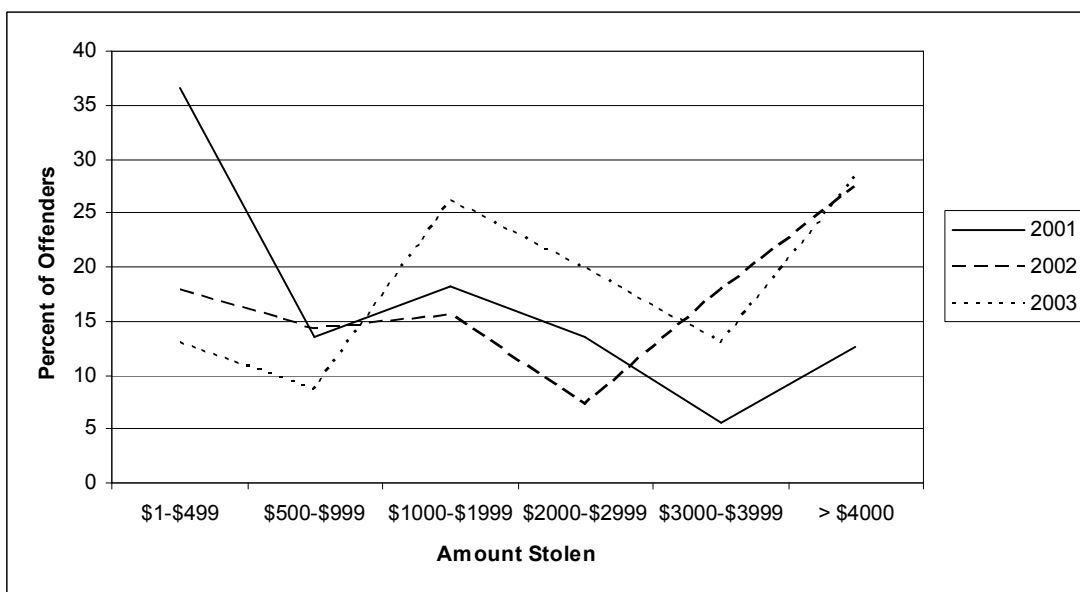


Figure 6.27: Percentage of Burglaries by Amount Stolen for Christchurch for the period 2001-2003

The average value of goods stolen was compared to the deprivation decile of the victim, to identify any trends regarding the value of goods stolen and the deprivation of the area in which the offender lived (Figure 6.28). The relationship between the amount stolen and the deprivation was greatly variable. However, there was a negative relationship deprivation one to six. The average amount stolen increased from deprivation decile seven to deprivation decile nine. The average amount stolen then decreased in deprivation decile ten.

Due the amount of variation for the relationship between the average amount stolen and the deprivation of the area in which the victim lived, a scatter diagram was produced to identify reasons for the variation (Figure 6.29). From interpretation of the diagram, the variation could be attributed to four burglaries in deprivation deciles eight and nine where items valued in excess of \$1000 were stolen. Thus there was a negligible correlation between deprivation and average amount stolen (Pearson correlation=-0.12). The lack of correlation between deprivation and amount stolen could also be due to the large standard deviations of the amounts stolen within each deprivation decile (Table 6.2).

Figure 6.30 illustrates that victims living in less deprived areas have a higher percentage of more expensive items stolen than victims in medium or high deprivation areas. The victims living in medium and high deprivation areas have a similar percentage of value of goods stolen. The relationship between the value of goods stolen and the level of deprivation in which the victims lived was tested with a Chi-Square test. The correlation between the variables was found to be not significant ($\chi^2=7.75$; $p<0.05$).

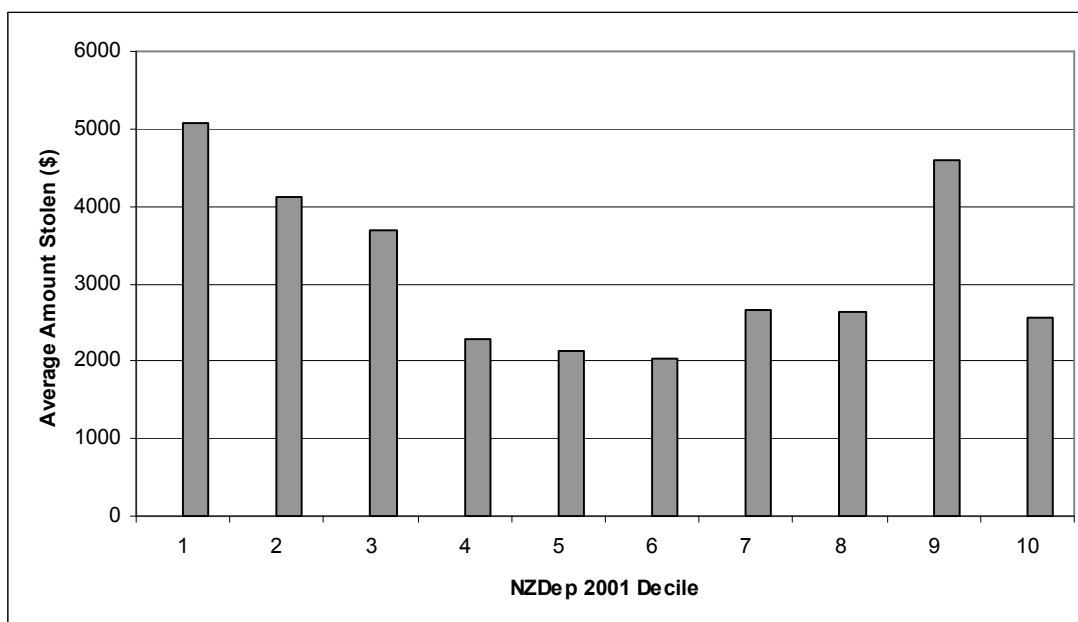


Figure 6.28: Average Amount Stolen in Burglaries by the NZDep 2001 Decile of the Victim's Address for Christchurch (2001-2003)

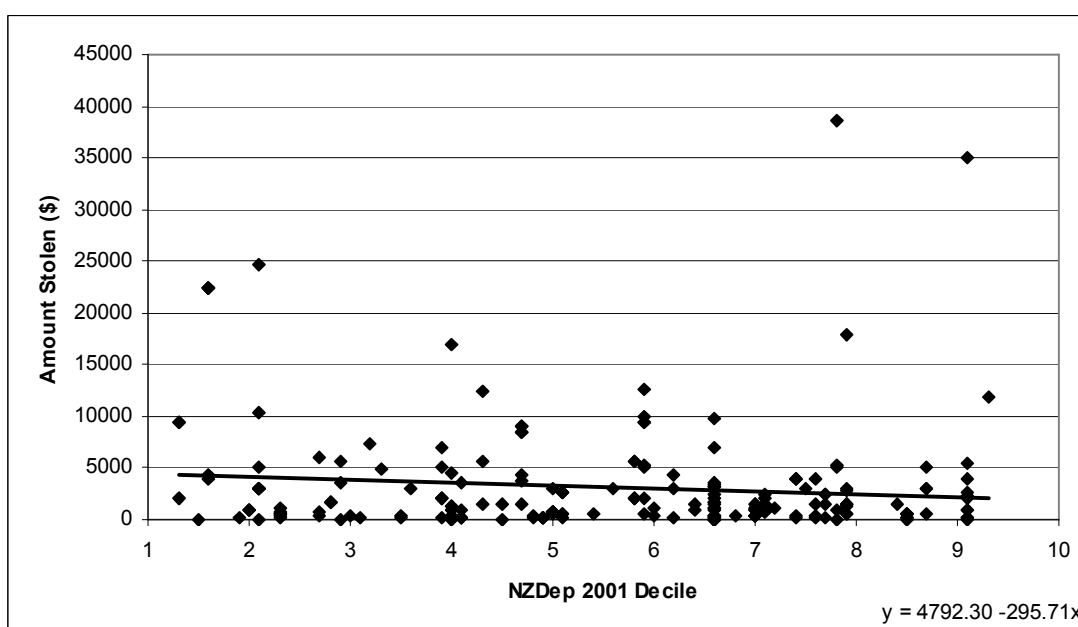


Figure 6.29: Amount Stolen in Burglaries by the Continuous NZDep 2001 Deciles of the Victim's Address for Christchurch (2001-2003)

Table 6.2: Averages, Standard Deviations and Sample Sizes of the Amount Stolen by NZDep 2001 Decile for Christchurch (2001-2003)

NZDep 2001 Decile	Average Amount	Standard Deviation	Sample Size
1	\$6366.20	\$9319.60	18
2	\$4661.10	\$3933.80	18
3	\$4035.30	\$3165.60	20
4	\$1863.80	\$1863.80	19
5	\$1606.20	\$2000.50	20
6	\$1947.40	\$2872.10	18
7	\$2235.60	\$2603.00	26
8	\$2509.50	\$3779.80	22
9	\$3545.70	\$8261.50	39
10	\$2611.80	\$2298.00	18
Nothing Stolen	-	-	65
Unknown	-	-	574

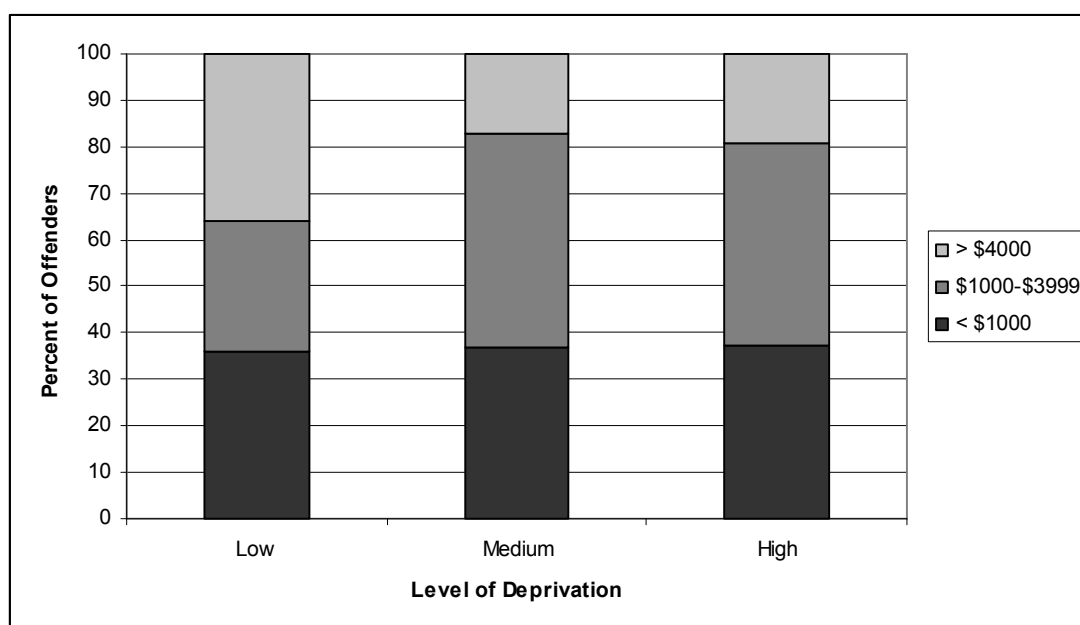


Figure 6.30: The Value of Goods Stolen in Burglaries by the Level of Deprivation of the Area in which the Victim Lives for Christchurch 2001-2003

For the period 2001-2003, the types of items that were stolen in burglaries were examined. The most common items taken were audio-visual equipment (23.6%) such as TVs, video recorders, DVD players or stereos (Figure 6.31). Other common items taken were electronic items (21.4%) (such as cell phones, computers, laptops or portable phones), cash (9.2%), clothing (8.7%), and jewellery (8.0%). Less common items taken include liquor and tobacco (5.9%), sporting equipment (4.3%), builder's supplies (3.2%) and groceries (2.5%). Other items, such as firearms, ammunition and medication, were taken in the case of 7.8% of burglaries. Nothing was taken in 5.4% of cases.

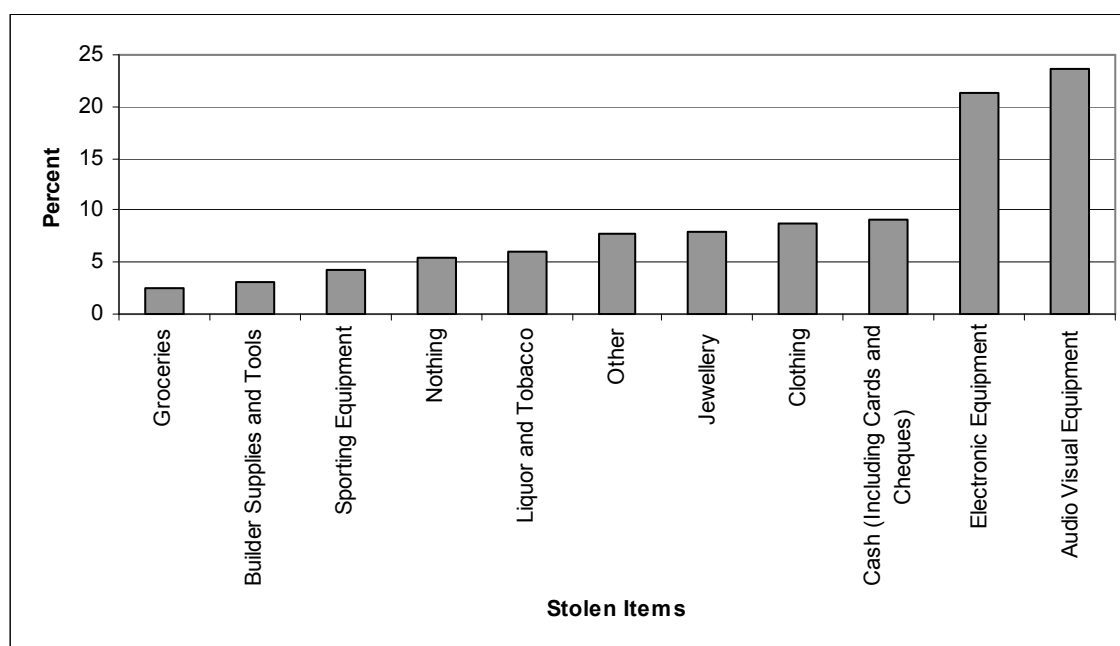


Figure 6.31: Percentage of Items Stolen During Burglaries for Christchurch 2001-2003

6.6: How Far will the Burglar Travel?

Over the study period (2001-2003) the average distance travelled to commit burglary increased from 4.1km to 4.4km, however the average distance fluctuated in 2002 (Table 6.3). There was a great amount of variation in distances within each year. This variation can be seen through the large standard deviations. The longest overall distance for the study period was 18.8km, and the shortest was 0km where the offenders burgled from their parents or flat-mates. Offenders used many methods of transport such as; bicycling, walking, driving or bussing (pers. comm. Detective Sergeant Corrie Parnell).

Table 6.3: Averages, Standard Deviations and Sample Sizes for the Distances Travelled to Bungle for Christchurch (2001-2003)

Year	Average Distance (km)	Standard Deviation (km)	Sample Size
2001	4.1	4.2	253
2002	4.5	4.4	335
2003	4.4	3.1	273
2001-2003	4.4	3.8	857

6.6.1: Distance by Offender's Gender

In order to examine gender differences in behaviour relative to the distances travelled to the burglaries, the distances travelled by males and females were calculated for the entire study period (2001-2003). Males were found to travel slightly further than females to commit burglaries (4.4km compared to 4.2km). In 2001, males travelled further than females (4.2km and 3.1km respectively). Males also travelled the furthest in 2002 where males travelled 4.6km and females travelled 4.4km. Conversely, in 2003, females travelled further than males to commit burglary (4.6km for females compared to 4.4km for males). Table 6.4 contains the sample sizes and standard deviations relating to the average distances

travelled. The standard deviations were rather sizeable, showing some degree of variation in distance travelled within each gender.

Table 6.4: Averages, Standard Deviations and Sample Sizes of Distances Travelled to Commit Burglary by the Gender of the Offender for Christchurch (2001-2003)

	Gender	2001-2003	2001	2002	2003
Average	Male	4.4	4.2	4.6	4.4
Distance (km)	Female	4.2	3.1	4.4	4.6
Standard	Male	3.6	3.9	3.6	3.3
Deviation (Km)	Female	3.8	3.1	3.7	4.0
Sample	Male	757	229	284	244
Size	Female	100	24	47	29

6.6.2: Distance by Offender's Age

Offenders travel further, on average, to commit a burglary the younger they are (Figure 6.32). The average distance travelled by offenders increases for offenders aged 10 to 29 years, however, as the age of offender's increases the average distance they travel decreases. The average distance travelled by offenders aged between 30 and 39 was very similar to the average distance travelled by offenders aged over forty years. Offenders aged between 20 and 29 years were found to travel the longest distance to commit a burglary for 2001-2003 (5.0km), and offenders over the age of forty travelled the shortest distance (3.3km). A very weak negative Pearson correlation was found between the age of the offender and the distance travelled to commit a burglary (-0.08).

The distance travelled was analysed with respect to the offender's age for the years 2001-2003 individually and the relationship between age and average distance travelled was found to be broadly consistent for each individual year (Figure 6.33). The average distance travelled by offenders aged between 10 and 14 years decreased from 2001 to 2003. The distance also decreased for offenders aged 20 to 29 years. There was an overall increase in the distance travelled by offenders aged between 15 to 19 years between 2001 and 2003,

the distance travelled by offenders aged 30 to 39 years and over 40 years also increased overall. In 2001, offenders aged between 20 and 29 travelled the longest distance (4.9km) to commit a burglary. Conversely, offenders aged between 10 and 14 years travelled the shortest distance (3.1km). The longest distance travelled in 2002 was again travelled by offenders aged between 20 and 29 years (5.3km) with offenders aged 30 to 39 years travelling the shortest distance (3.2km). In 2003, offenders aged 10 to 19 years travelled the longest distance to commit burglaries (4.9km), and those aged between 10 and 14 years travelled the shortest distance (2.0km). The standard deviations of the average distance travelled by offenders were calculated, as were the sample sizes illustrating quite a large range of distances travelled (Table 6.5).

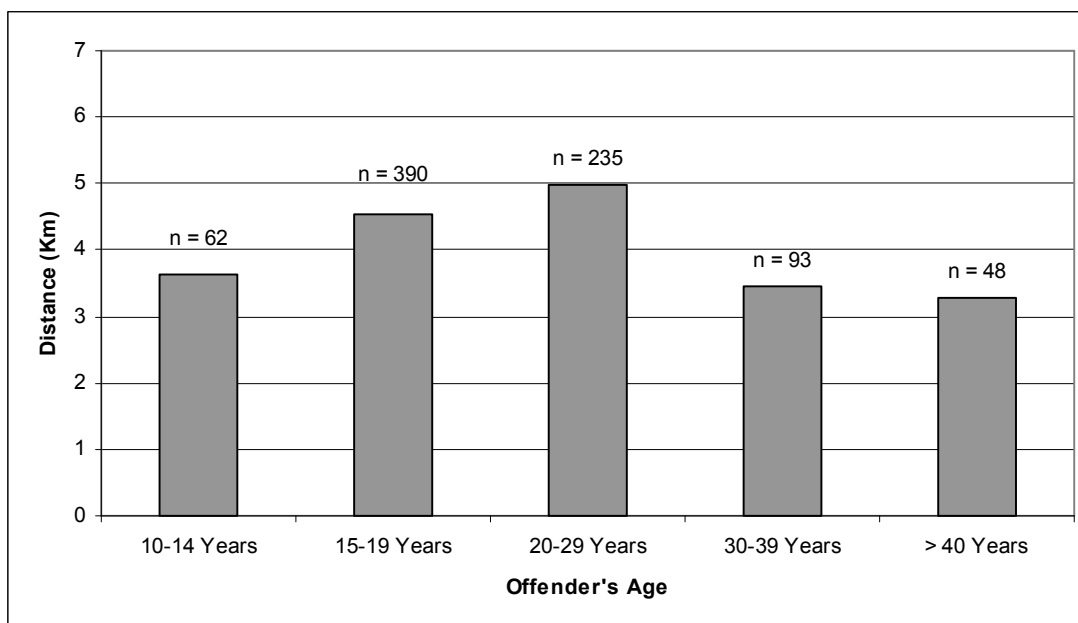


Figure 6.32: Average Distance Travelled to Commit a Burglary by Offender's Age for Christchurch (2001-2003)

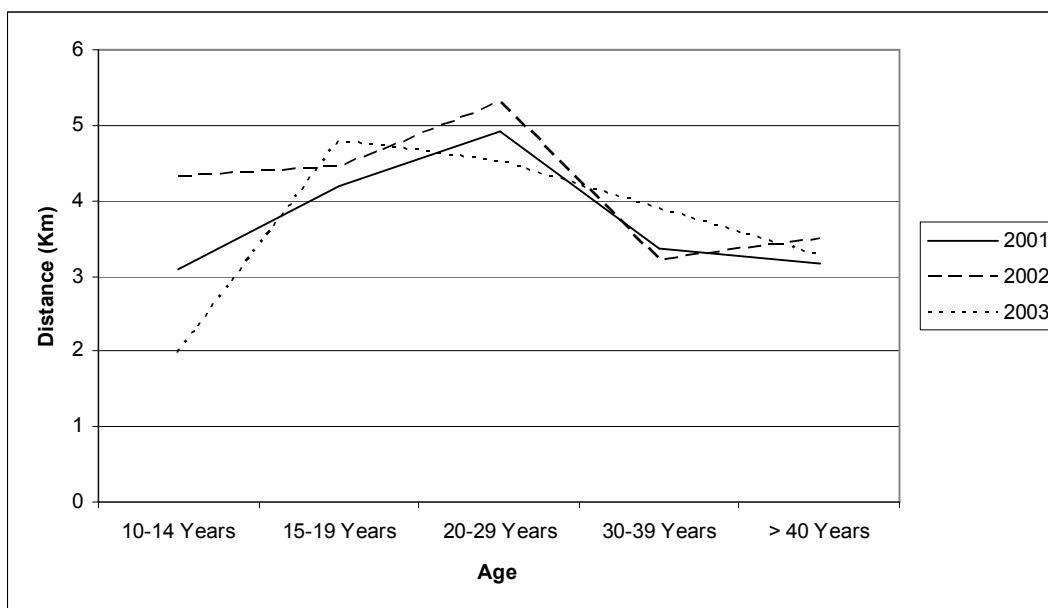


Figure 6.33: Average Distance Travelled to Commit a Burglary by Offender's Age for Christchurch (2001-2003)

Table 6.5: Averages, Standard Deviation and Sample Size for the Distance Travelled to Commit a Burglary by Offender's Age for Christchurch for the period 2001-2003

	Age	2001-2003	2001	2002	2003
Average Distance (km)	10-14 years	3.6	3.1	4.3	2.0
	15-19 years	4.5	4.2	4.4	4.8
	20-29 years	5.0	4.9	5.3	4.5
	30-39 years	3.5	3.4	3.2	3.9
	> 40 years	3.3	3.2	3.5	3.3
Standard Deviation (km)	10-14 years	1.8	3.1	3.2	0.2
	15-19 years	3.6	4.2	3.4	3.5
	20-29 years	3.3	4.9	3.2	2.5
	30-39 years	3.0	3.4	2.0	2.0
	> 40 years	1.8	3.2	0.4	1.3
Sample Size	10-14 years	62	27	31	4
	15-19 years	390	125	137	128
	20-29 years	235	60	106	69
	30-39 years	93	29	37	27
	> 40 years	48	12	10	26
	Unknown	29	-	10	19

6.6.3: Distance by Offender's Ethnicity

The distance travelled by the offender in 2001-2003 was analysed in relation to their ethnicity. It was found that Maori offenders travelled the longest distance to commit a burglary (4.5km) (Figure 6.34). European offenders were found to travel the next longest distance (4.4km) and offenders of 'other' ethnicities were found to travel the shortest distance (4.0km). The average distance travelled by ethnic groups was also calculated for each individual year, which showed an overall increase in distance travelled by Maori and European offenders to burgle (Table 6.6). In 2001 the longest distance travelled, on average, to burgle was travelled by Maori offenders (4.4km), European offenders travelled the next longest distance (4.0km) and offenders of 'other' ethnicities travelled the shortest distance to commit a burglary (2.7km). In 2002, offenders of 'other' ethnicities travelled the longest distance to commit a burglary (4.7km), followed by European offenders (4.7km), and Maori offenders travelled the shortest distance to commit a burglary (4.7km). Maori offenders travelled the longest distance at 4.7km to commit a burglary in 2003, followed by European offenders at 4.4km to commit a burglary, and offenders of other races travelled 4.0km to commit a burglary. Table 6.6 states all of the standard deviations and sample sizes for the average distances travelled, and shows that the smallest range of distances was for offenders of 'other' ethnicities.

Table 6.6: Averages, Standard Deviations and Sample Sizes of Distances Travelled by Offenders to Commit Burglaries by their Ethnicity for Christchurch (2001-2003)

	Ethnicity	2001-2003	2001	2002	2003
Average Distance (km)	European	4.4	4.0	4.7	4.4
	Maori	4.5	4.4	4.4	4.7
	Other	4.0	2.7	4.7	4.0
Standard Deviation (km)	European	3.6	4.0	3.4	3.3
	Maori	3.8	3.9	3.7	3.9
	Other	1.7	0.7	2.4	1.3
Sample Size	European	431	146	160	125
	Maori	341	95	148	98
	Other	85	12	23	50

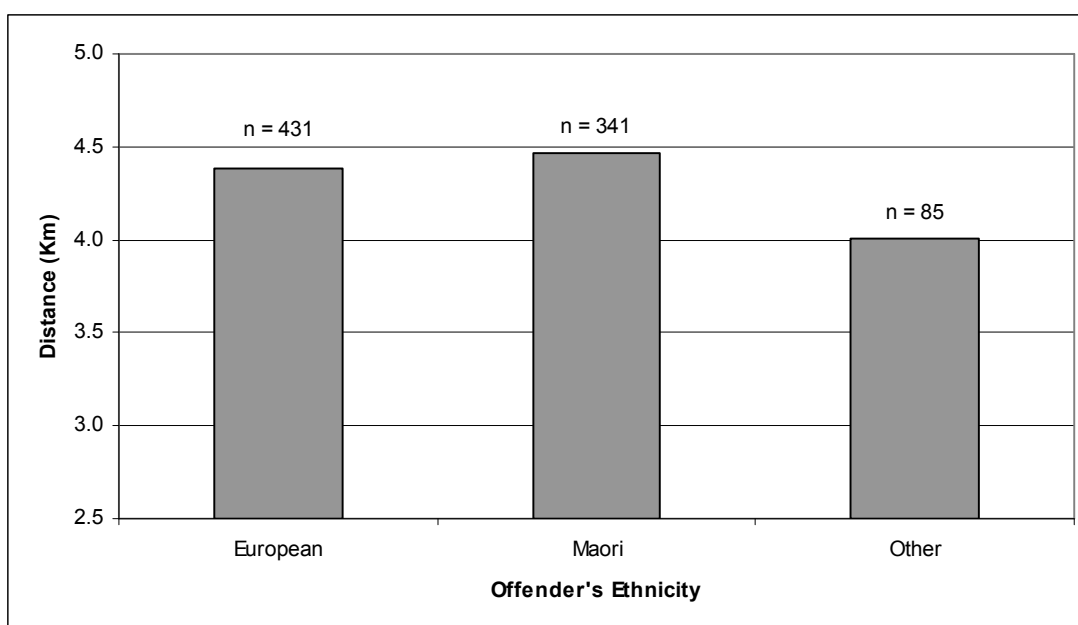


Figure 6.34: Average Distance Travelled to Commit a Burglary by Offender's Ethnicity for Christchurch (2001-2003)

6.6.4: Distance by Offender's Occupation

The analysis of the distance travelled when categorised by the offender's occupation (Figure 6.35), showed that sickness beneficiaries travelled, on average, the longest distance to commit a burglary (5.0km) for the period 2001-2003. Unemployed offenders travelled the next longest distance (4.1km) and offenders who were students were found to travel the shortest distance to commit a burglary (3.9km).

The average distance was also calculated with respect to the offender's occupation for each individual year, showing that, overall, the distance travelled by offenders who were sickness beneficiaries decreased from 2001 to 2003 (Figure 6.36). The average distance travelled by unemployed offenders increased, and the average distance travelled by students

also increased from 2001 to 2003. In examining the standard deviations of the distances travelled, offenders with 'other' occupations travelled the shortest range of distances (Table 6.7).

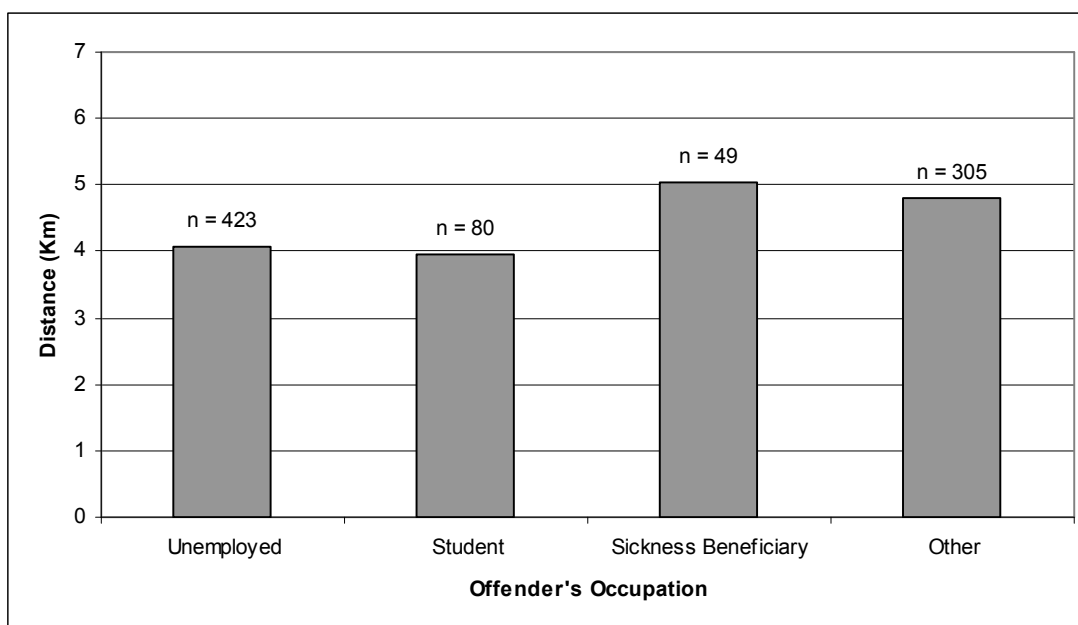


Figure 6.35: Average Distance Travelled to Commit a Burglary by Offender's Occupation for Christchurch (2001-2003)

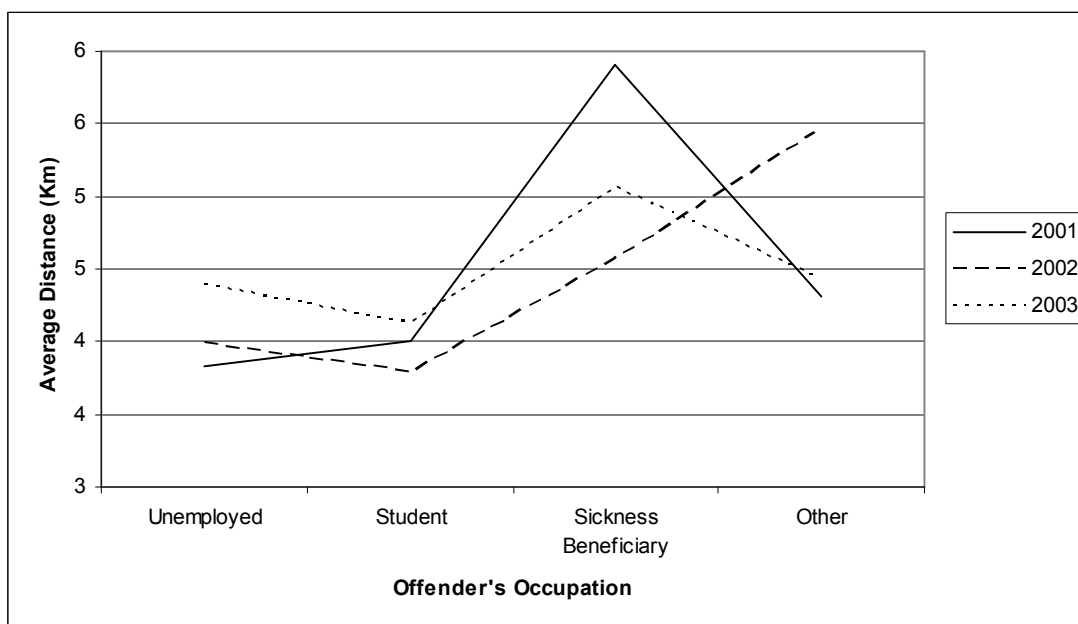


Figure 6.36: Average Distance Travelled to Commit Burglary by the Offender's Occupation for Christchurch for the period 2001-2003

Table 6.7: Averages, Standard Deviations and Sample Sizes of the Distances Travelled to Commit Burglary by the Offender's Occupation for Christchurch (2001-2003)

	Occupation	2001-2003	2001	2002	2003
Average Distance (km)	Unemployed	4.1	3.8	4.0	4.4
	Student	3.9	4.0	3.8	4.1
	Sickness Beneficiary	5.0	5.9	4.6	5.1
	Other	4.8	4.3	5.5	4.4
Standard Deviation (km)	Unemployed	3.5	3.7	3.2	3.6
	Student	4.0	4.1	3.9	4.4
	Sickness Beneficiary	3.9	7.0	3.2	3.6
	Other	1.1	1.0	1.3	0.6
Sample Size	Unemployed	423	117	160	146
	Student	80	34	32	14
	Sickness Beneficiary	49	9	19	21
	Other	305	93	120	92

6.6.5: Distance from Offender's Address

The distance travelled by offenders was analysed in relation to the level of deprivation of the area in which the offender lived. The deprivation of the areas was divided into low, medium and high levels of deprivation. This was necessary to obtain an adequate number in each of the levels of deprivation in order to find representative average distances.

Figure 6.37 illustrates the average distances travelled by offenders in each of the levels of deprivation. The average distance travelled by offenders in highly deprived areas is shorter than the distances travelled by offenders who lived in areas of low or medium deprivation. However, there is a great deal of variation between each of the especially for offenders in the low deprivation areas. The distances travelled by offenders in medium and high deprivation areas illustrate the same trend. The reason for the large variation in the less deprived areas was explained by examining the standard deviations and sample sizes (Table 6.8). The low deprivation areas had the smallest sample sizes and the largest standard deviations for the study period and for each individual year, with the exception of the offenders in 2003.

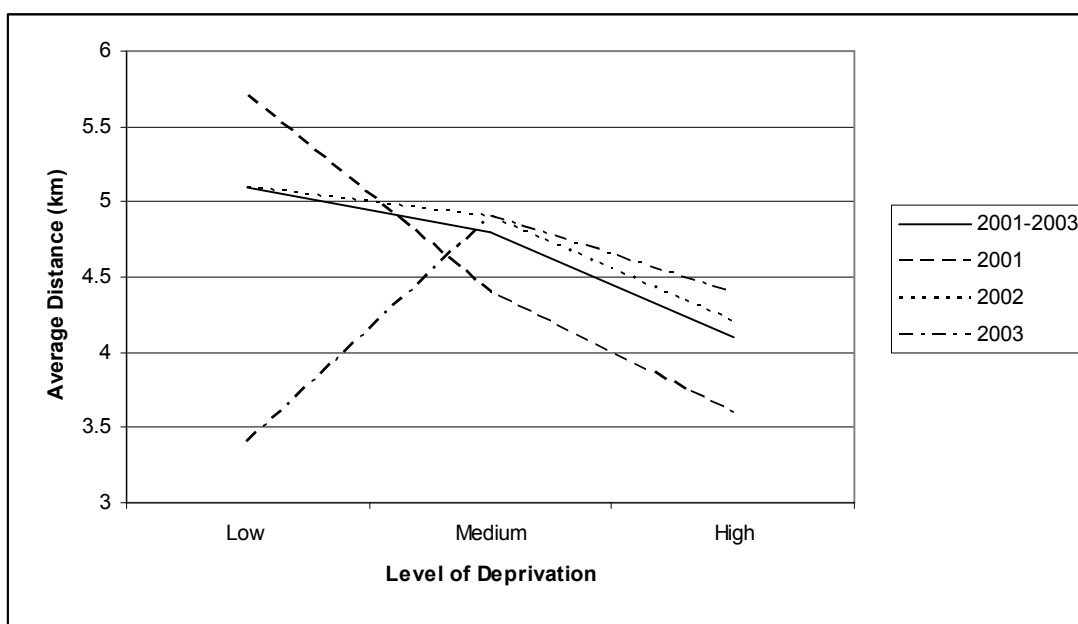


Figure 6.37: Average Distance Travelled by Offenders from their Address by the Level of Deprivation of the Area in which they live for Christchurch for the period 2001-2003

Table 6.8: Averages, Standard Deviations and Sample Sizes for the Distance Travelled by Offenders by the Level of Deprivation in which they Live for Christchurch for the period 2001-2003

	Level of Deprivation	2001-2003	2001	2002	2003
Average Distance (km)	Low	5.1	5.7	5.1	3.4
	Medium	4.8	4.4	4.9	4.9
	High	4.1	3.6	4.2	4.4
Standard Deviation (km)	Low	4.5	5.2	3.9	2.9
	Medium	3.4	3.7	3.3	3.4
	High	3.6	3.5	3.8	3.4
Sample Size	Low	69	36	22	11
	Medium	268	76	141	51
	High	520	141	168	211

Low = NZDep 2001 Decile 1-3; Medium = NZDep 2001 Decile 4-7; High = NZDep 2001 Decile 8-10

The number and percentage of offenders in each level of deprivation was categorised by whether they travelled short, medium or long distances (Table 6.9). In each of the deprivation levels, the largest percentage of offenders travelled medium distances. A relatively equal percentage of offenders travelled long and short distances within each of the deprivation levels. Whether or not the distance travelled by offenders was dependent on the level of deprivation of the area in which the offender lived was examined by way of a Chi-Square (Table 6.10). For the study period, the results demonstrated that the distance travelled by offenders was not significantly related to the level of deprivation of the area in which they live. There was also no significance between the distance travelled by offenders and the level of deprivation in which the offender lived for 2001 and 2002. However, in 2003 a significant relationship occurred.

Table 6.9: Number and Percentage of Offenders (2001-2003) Travelling Specified Distances by Deprivation Status of the Area in which they lived for Christchurch

Level of Deprivation	Short Distances (<0.6km)	Medium Distances (0.6 - 8.2km)	Long Distances (>8.2km)	Totals
Low (Percent of Offenders)	20%	55%	25%	100%
(Number of Offenders)	14	38	17	69
Medium (Percent of Offenders)	14%	68%	18%	100%
(Number of Offenders)	37	183	48	268
High (Percent of Offenders)	18%	65%	17%	100%
(Number of Offenders)	95	336	89	520
Total (Number of Offenders)	146	557	154	857

Low = NZDep 2001 Decile 1-3; Medium = NZDep 2001 Decile 4-7; High = NZDep 2001 Decile 8-10

Short (>-1 Standard Deviation); Medium (< ± 1 Standard Deviation); Long (> 1 Standard Deviation)

Table 6.10: Relationship between Distance Travelled by Offenders and Deprivation Status of the Area in which they Lived for Christchurch (2001-2003)

Year	χ^2 Chi Statistic	Verdict
2001	2.48	Relationship Not Significant
2002	3.75	Relationship Not Significant
2003	17.26	Relationship Significant
2001-2003	5.96	Relationship Not Significant

*p<0.05

In order to further examine the way in which the distance travelled by offenders is related to the level of deprivation of the area in which the offender lived, a scatter-diagram of the actual distances travelled, by continuous deprivation deciles was produced (Figure 6.38). The extent of the variation within each deprivation decile with regard to distance travelled is clearly illustrated. A very weak negative Pearson correlation was found between offender's address and distance travelled to commit burglary (-0.05).

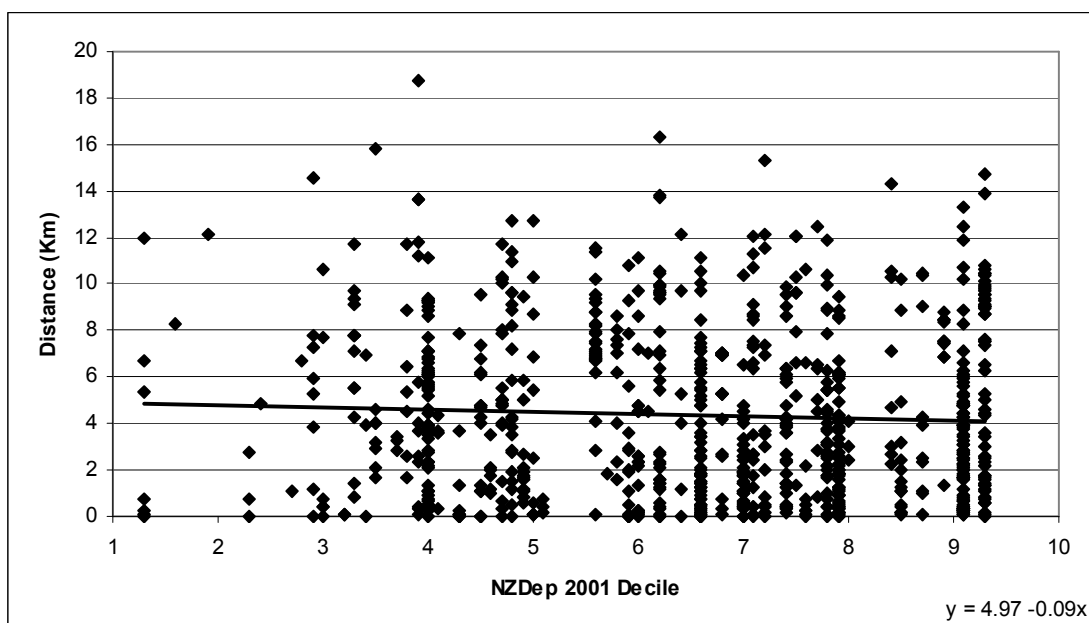


Figure 6.38: Distance Travelled by Offenders by NZDep 2001 Decile in which they live for Christchurch (2001-2003)

The direction and distance that the offenders travelled to commit burglary was illustrated using a random sample of forty offenders. Half of these offenders resided in areas of low deprivation (deciles one to three) while the other half lived in areas of high deprivation (deciles eight to 10). The travel patterns of offenders in the low deprivation deciles were illustrated in a separate map to those in the high deprivation deciles so that the maps would allow for a clear comparison between offenders from low and high deprivation areas. Although the maps are not fully representative of the entire sample, they do provide a spatial illustration of the distances offenders will travel to burgle.

The map illustrated that some of the offenders from low deprivation areas committed fewer burglaries closer to or at their residences (Figure 6.39). The map illustrated that in some cases the offenders have burgled properties in close proximity to other offenders, meaning that some offenders have travelled to other low deprivation areas to offend. Some of the offenders in the sample from high deprivation areas travelled longer distances to commit burglaries, often to the other side of town (Figure 6.40). One of the offenders in the sample can be identified as committing numerous burglaries, and to commit each of these burglaries the offender has travelled east. It is apparent from the map that, in some cases, when offenders burgle a property in pairs the property that they burgle is a similar distance between both of the offender's addresses. Some of the offenders in the sample group lived in close proximity to one another but when they offend, they travelled in different directions and different distances to burgle.

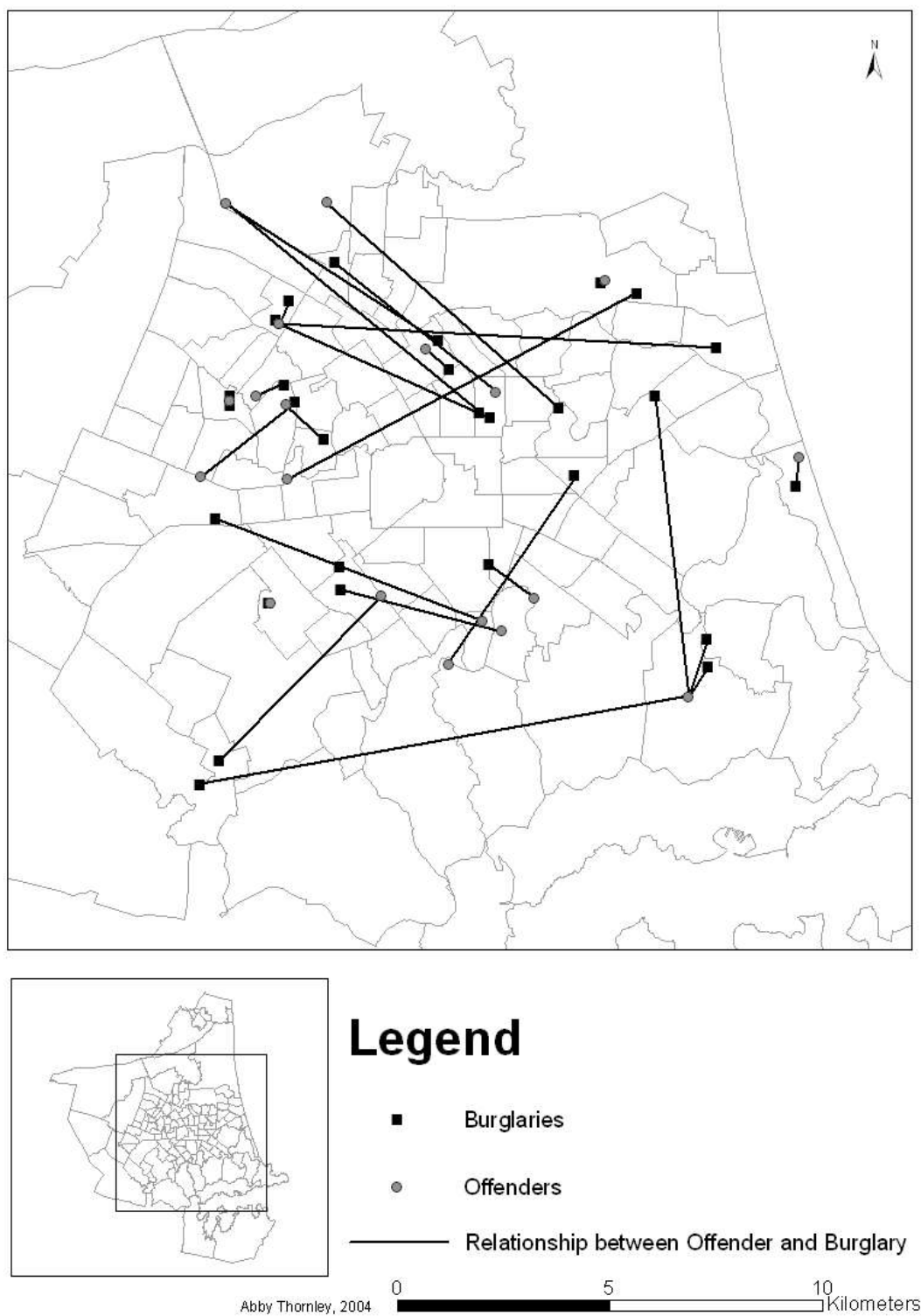


Figure 6.39: Mobility Map of Distance Travelled to Burgle for Offenders Living in Low-Deprivation Areas for Christchurch 2001-2003

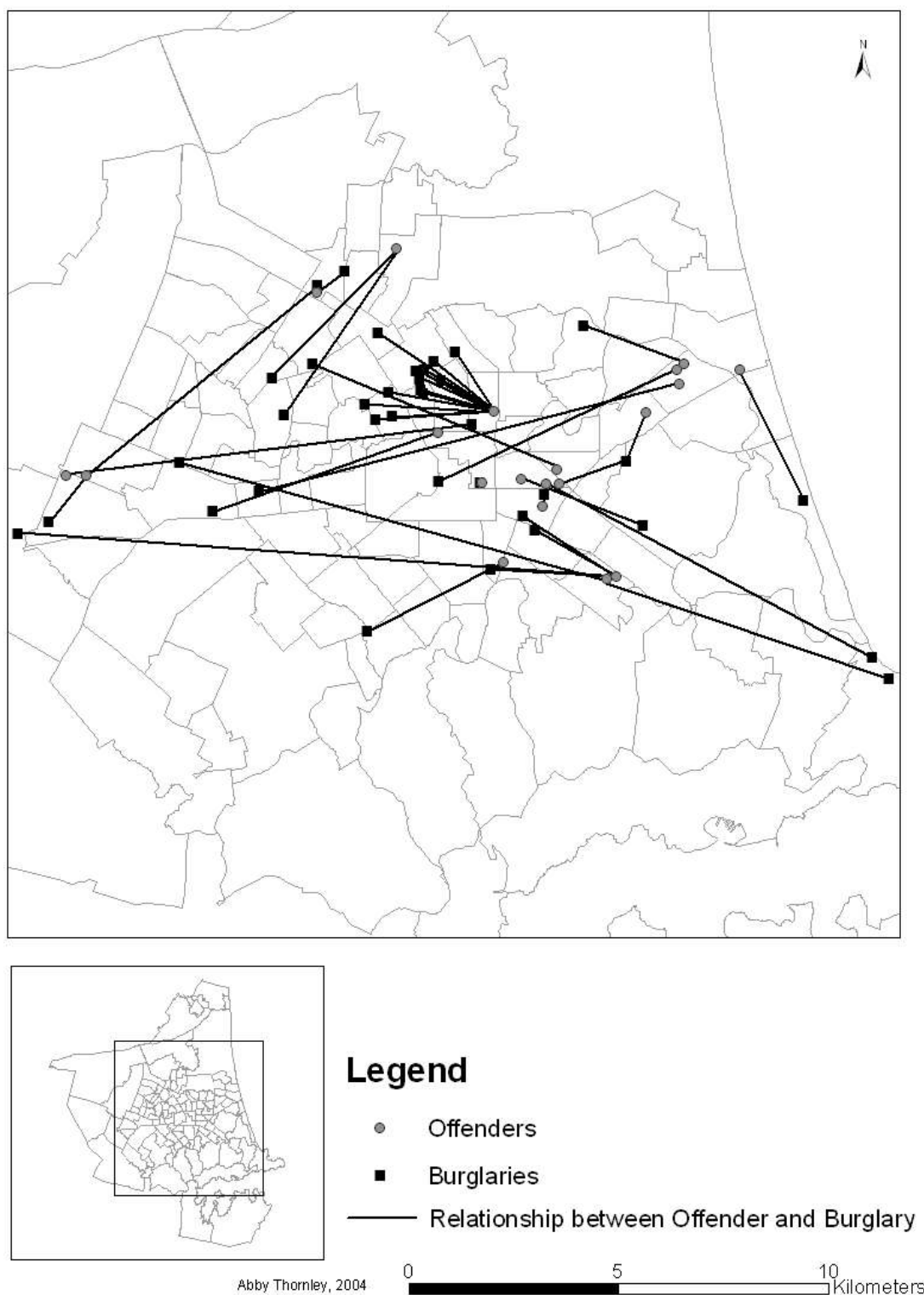


Figure 6.40: Mobility Map of Distance Travelled to Burgle for Offenders Living in High-Deprivation Areas for Christchurch 2001-2003

6.6.6: Distance from Victim's Address

The distance travelled by offenders to commit a burglary was also examined with respect to the deprivation level of the victim's residence. This comparison is important as it could provide insights into the offender's perceptions regarding houses in less deprived areas. For example, the offender may perceive properties in less deprived areas to have more valuable items to steal than the properties in the higher deprivation deciles. Thus, the offender may be more inclined to travel further to burgle the houses in the less deprived areas. Offenders travelled the longest distances to burgle victims who lived on the outskirts of Christchurch for the study period (2001-2003) (Figure 6.41). The areas where offenders travelled the longest distances included areas such as Sumner, Northwood, Yaldhurst, and Cashmere. Offenders travelled the shortest distances to reach victims who lived in the central city and in the central eastern areas such as Linwood, Opawa, Spreydon, Aranui and Richmond.

The spatial distribution was broadly consistent for each individual year (2001-2003). When the average distance travelled by offenders was compared to the deprivation decile of the victim's address for the study period (2001-2003), it was found that victims living in more deprived areas were burgled by offenders who travelled a shorter distance to reach them than they did to reach victims in less deprived areas (Figure 6.42). Although this relationship was largely consistent for each individual year in 2001 the average distance travelled to reach victims living in deprivation decile five was shorter than the distance travelled to reach victims living in deprivation decile six. Additionally, in 2002, offenders travelled longer, on average, to reach victims living in deprivation decile two, than to reach victims living in deprivation decile one. The standard deviations were sizeable, indicating that there was a great deal of variation within each deprivation decile relating to the distance travelled (Table 6.11). This variation was demonstrated by way of a scatter-diagram between the distances travelled and the continuous NZDep 2001 Decile of the victim (Figure 6.43). Due to the variation within each deprivation decile there was a small negative relationship found between the two variables (Pearson correlation = -0.32). When examined using the Chi-Square test, a significant relationship was found between the distance travelled and the deprivation level of the area in which the victim lives ($\chi^2=52.22$, $p<0.05$).

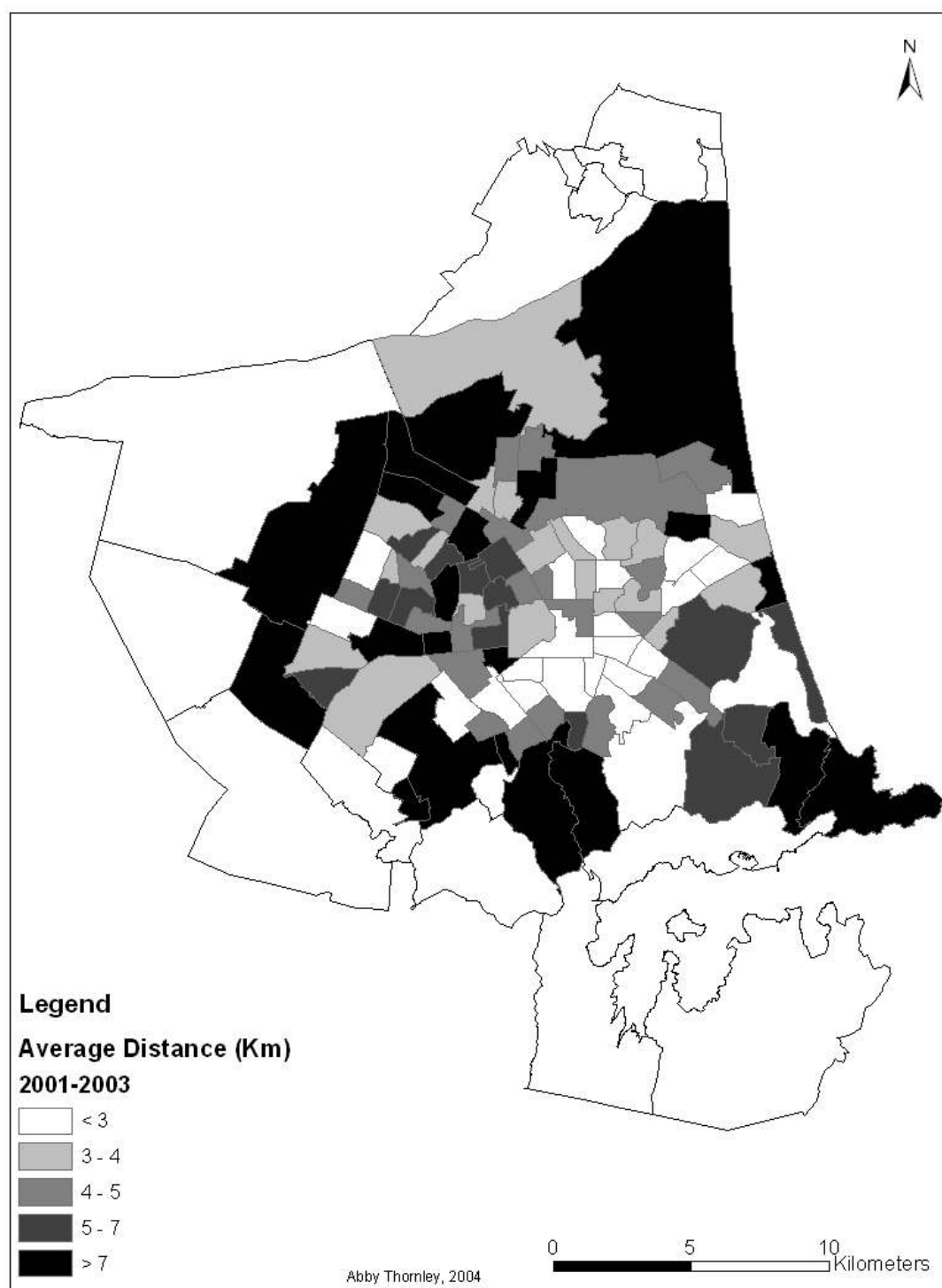


Figure 6.41: Average Distance Travelled by CAU to Commit a Burglary from the Victim's Address for Christchurch (2001-2003)

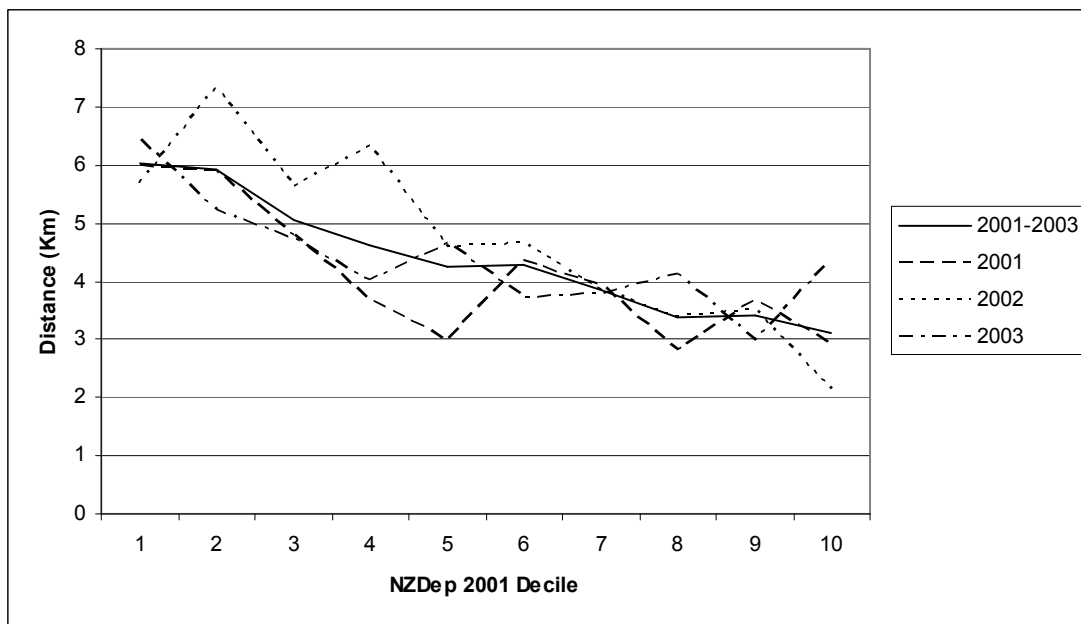


Figure 6.42: Average Distance Travelled by Offenders to Commit a Burglary by NZDep 2001 Decile in which the Victim Lives for Christchurch for the period 2001-2003

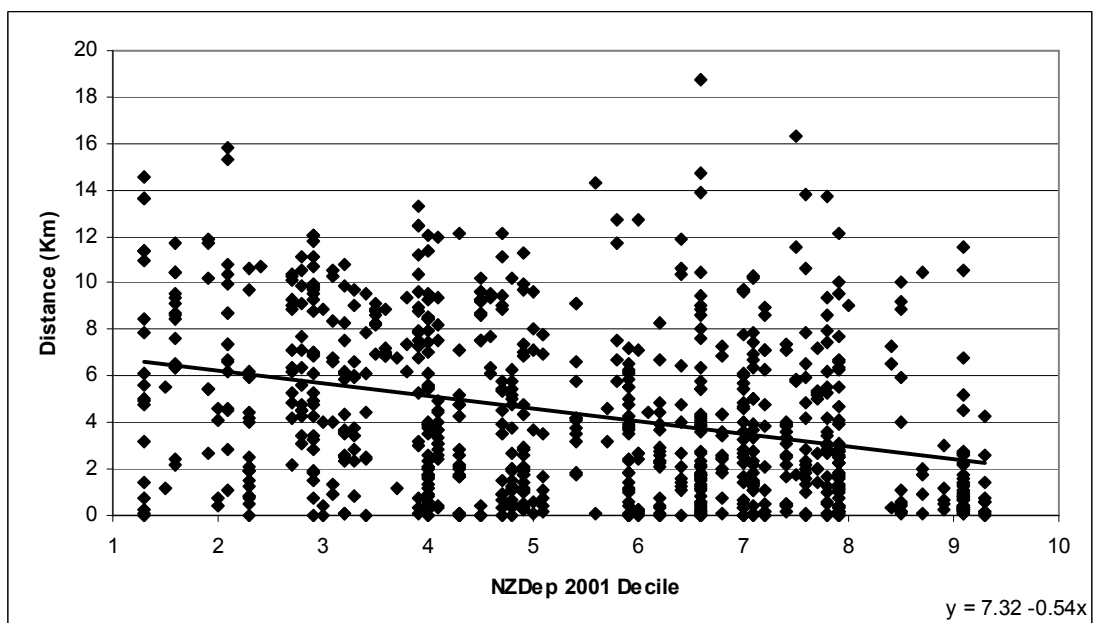


Figure 6.43: Distance Travelled by Offenders to Commit a Burglary by Continuous NZDep 2001 Deciles in which the Victim Lives for Christchurch (2001-2003)

Table 6.11: Averages, Standard Deviations and Sample Sizes for the Distances Travelled by Offenders to Commit a Burglary by the NZDep 2001 Decile in which the Victim Lives for Christchurch (2001-2003)

	NZDep 2001 Decile	2001-2003	2001	2002	2003
Average Distance (km)	1	6.0	6.0	5.7	6.4
	2	5.9	5.9	7.3	5.2
	3	5.1	4.8	5.6	4.7
	4	4.6	3.7	6.3	4.0
	5	4.2	3.0	4.6	4.6
	6	4.3	4.4	4.6	3.7
	7	3.9	3.9	3.9	3.8
	8	3.4	2.8	3.4	4.1
	9	3.4	3.7	3.5	3.0
	10	3.1	2.9	2.1	4.3
Standard Deviation (km)	1	3.9	4.5	3.4	3.9
	2	3.5	3.8	4.1	2.9
	3	3.0	2.7	3.3	2.9
	4	3.6	3.6	3.6	2.8
	5	3.8	4.4	3.7	3.5
	6	3.3	4.0	3.1	2.9
	7	3.5	3.7	3.1	4.1
	8	3.6	3.4	3.5	4.2
	9	3.5	4.4	3.4	2.9
	10	3.3	3.5	2.7	3.5
Sample Size	1	83	31	29	23
	2	82	18	21	43
	3	79	19	28	32
	4	90	37	29	24
	5	75	17	32	26
	6	106	30	44	32
	7	79	25	35	19
	8	108	34	46	28
	9	98	24	47	27
	10	57	18	20	19

6.6.7: Distance by Number of Burglaries Committed

The correlation between distance travelled to reach each burglary victim and the number of burglaries committed by each offender was analysed for 2001-2003 (Figure 6.44). Offenders who committed only one burglary were found to travel the shortest distance (3.9km), and offenders who committed more than ten burglaries travelled on average the longest distance per burglary (5.2km).

The relationship between the number of burglaries committed by each offender and the average distance travelled per burglary was also calculated for each individual year (Figure 6.45). There was an overall increase in the average distance travelled by offenders who committed one burglary and an overall decrease in the average distance travelled by offenders who had committed in excess of ten burglaries. For example, in 2001 and 2002 the offenders who committed only one burglary travelled the shortest distance. Offenders who committed more than ten burglaries travelled the longest distance. In 2003, however, the longest distance travelled was by offenders who committed two to five burglaries, and offenders who committed more than ten burglaries travelled the shortest distance. The smallest range of distances travelled was by offenders who had committed in excess of ten burglaries (Table 6.12).

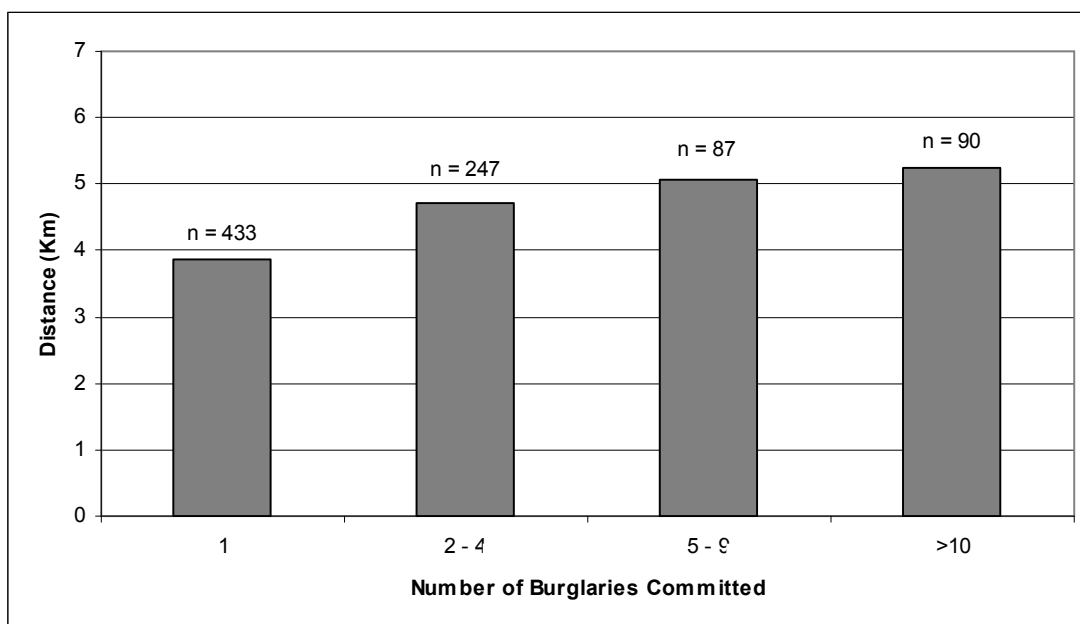


Figure 6.44: Average Distance Travelled by Number of Burglaries Committed by an Offender for Christchurch (2001-2003)

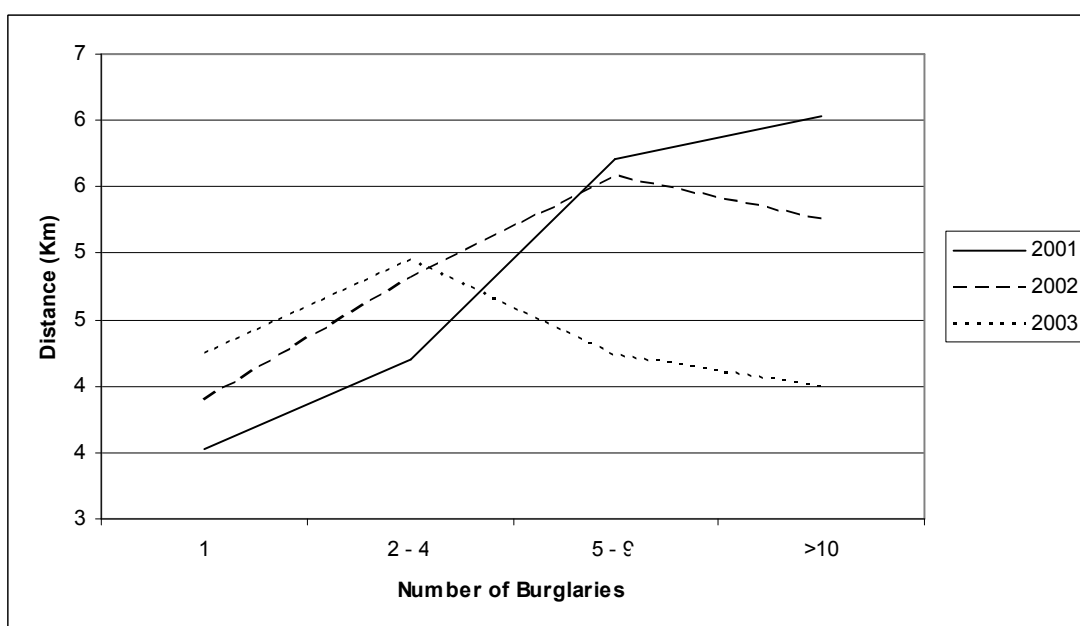


Figure 6.45: Average Distance Travelled to Commit a Burglary by Number of Burglaries Committed for Christchurch for the period 2001-2003

Table 6.12: Averages, Standard Deviations and Sample Sizes of Distances Travelled to Commit a Burglary by Number of Burglaries Committed for Christchurch for the period 2001-2003

	Number of Burglaries Committed	2001-2003	2001	2002	2003
Average	1	3.9	3.5	3.9	4.3
Distance (km)	2-4	4.7	4.2	4.8	5.0
	5-9	5.1	5.7	5.6	4.2
	>10	5.2	6.0	5.3	4.0
Standard	1	3.6	3.8	3.5	3.6
Deviation (km)	2-4	3.6	2.8	3.8	3.4
	5-9	2.7	4.3	3.6	2.1
	>10	1.7	1.4	2.0	1.5
Sample	1	433	146	150	137
Size	2-4	247	63	101	83
	5-9	87	16	37	34
	>10	90	28	43	19

6.6.8: Distance by Number of Offenders per Burglary

The average distance travelled by offenders with respect to the number of offenders committing each burglary was analysed for the period 2001-2003 (Figure 6.46). Overall, the distance travelled to commit a burglary increased with the number of offenders committing each burglary. The shortest distance travelled to burglaries was when the burglary was committed by two offenders (4.2km), and the longest distance was travelled when burglaries were committed by more than four offenders (5.6km). For the entire study period, there was a significant positive relationship between the number of offenders and the distance travelled to commit a burglary ($\chi^2=3.86$; $p>0.05$).

The number of offenders who commit each burglary was also examined for each individual year (Figure 6.47). There was an overall increase in the average distance travelled by

offenders who committed burglaries alone and in groups. It was found that in 2001 the longest distance was travelled when burglaries were committed by three offenders (5.1km), and the shortest distance was travelled when two offenders committed a burglary (3.7km). In 2002, the longest distance was travelled when more than four offenders committed a burglary (5.5km) and the shortest distance was travelled when burglaries were committed by one offender (4.4km). In 2003, the longest distance was travelled when more than four offenders committed a burglary (5.5km), and the shortest distance was travelled when one offender committed a burglary (4.3km). There were no apparent trends in the range of distances travelled by offenders (Table 6.13).

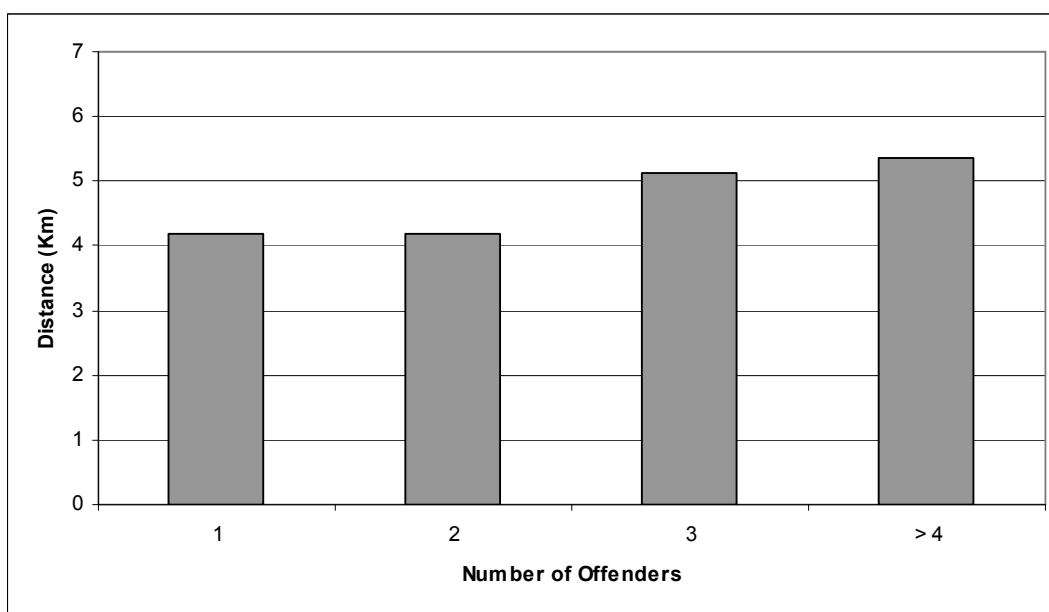


Figure 6.46: Average Distance Travelled to Commit a Burglary by Number of Offenders per Burglary for Christchurch (2001-2003)

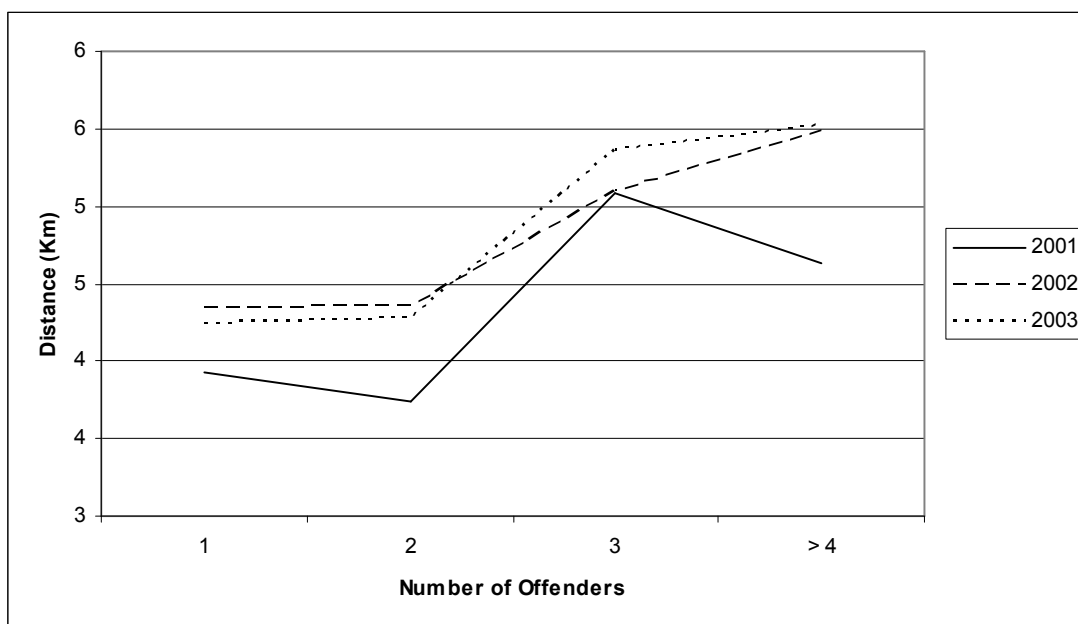


Figure 6.47: Average Distance Travelled to Commit a Burglary by Number of Offenders per Burglary for Christchurch for the period 2001-2003

Table 6.13: Averages, Standard Deviations and Sample Sizes for the Distances Travelled to Commit Burglary by the Number of Offenders per Burglary for Christchurch (2001-2003)

Number of Offenders per Burglary		2001-2003	2001	2002	2003
Average	1	4.2	3.9	4.3	4.2
Distance (km)	2	4.2	3.7	4.4	4.3
	3	5.1	5.1	5.1	5.4
	>4	5.3	4.6	5.5	5.5
Standard	1	3.6	3.7	3.7	3.6
Deviation (km)	2	3.3	3.7	3.2	3.2
	3	3.9	4.5	3.8	2.1
	>4	2.6	5.3	3.1	2.3
Sample	1	503	154	184	165
Size	2	190	48	76	66
	3	99	39	48	12
	>4	65	12	23	30

6.6.9: Distance by Amount Stolen by Offenders

When the average distance travelled by an offender was compared to the value of items stolen in the burglaries for the period 2001 to 2003, it was found that the average distance travelled decreased from offenders who stole nothing to offenders who stole between \$1000 and \$1999 (Figure 6.48). However, the average distance travelled then dramatically increased for offenders who stole between \$2000 and \$2999, and stayed fairly consistent for offenders who stole between \$3000 and \$3999 and over \$4000. The degree of variation meant there was a weak positive correlation (Pearson=0.13) between the distance travelled to reach a burglary and the value stolen in the burglary. For the study period, the longest distance was travelled by offenders who stole between \$3000 and \$4000 (5.5km). The shortest distance was travelled by offenders who stole between \$1000 and \$2000 (3.3km).

The relationship between distance travelled and amount stolen was also examined for each individual year. There was an overall decrease in the distance travelled by offenders who stole between \$1000 and \$1999, and between \$2000 and \$2999 from 2001 to 2003 (Figure 6.49). The distance travelled by offenders who stole nothing remained consistent for each year. There was an overall increase in the distance travelled by offenders who stole between \$1 and \$999 and more than \$3000. In 2001, the longest distance was travelled by offenders who stole between \$2000 and \$3000 (5.7km), and the shortest distance travelled was by offenders who stole between \$500 and \$1000 (1.9km). Offenders who stole over \$4000 travelled the longest distance in 2002 (6.2km), offenders who stole between \$1000 and \$2000 travelled the shortest distance (2.9km). In 2003, the longest distance travelled was travelled by offenders who stole between \$3000 and \$4000 (11.5km), the shortest distance was travelled by offenders who stole between \$2000 and \$3000 (2.3km). Table 6.14 states the sample sizes and standard deviations of the distances travelled and shows that there were no apparent trends in the range of distances.



Figure 6.48: Average Distance Travelled to Commit a Burglary by Amount Stolen for Christchurch (2001-2003)

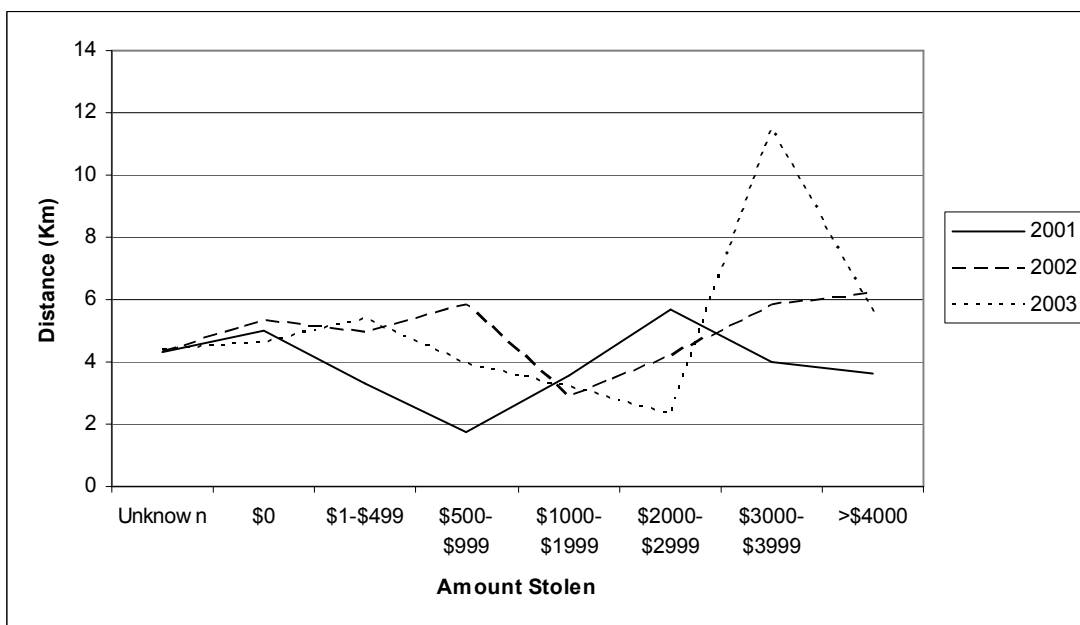


Figure 6.49: Average Distance Travelled to Commit a Burglary by Amount Stolen for Christchurch for the period 2001-2003

Table 6.14: Averages, Standard Deviations and Sample Sizes of the Distances Travelled to Commit a Burglary by Amount Stolen for Christchurch for the period 2001-2003

	Amount Stolen	2001-2003	2001	2002	2003
Average Distance (km)	Unknown	4.3	4.3	4.3	4.4
	\$0	5.0	5.0	5.3	4.6
	\$1-\$499	3.9	3.3	4.9	5.4
	\$500-\$999	3.4	1.8	5.8	4.0
	\$1000-\$1999	3.3	3.6	2.9	3.2
	\$2000-\$2999	5.0	5.7	4.2	3.2
	\$3000-\$3999	5.5	4.0	5.8	11.5
	>\$4000	5.3	3.6	6.2	5.6
Standard Deviation (km)	Unknown	3.6	4.2	3.6	3.4
	\$0	3.6	3.8	3.5	3.3
	\$1-\$499	8.9	7.4	9.9	5.4
	\$500-\$999	5.8	4.3	4.5	0.0
	\$1000-\$1999	7.4	6.2	2.3	3.8
	\$2000-\$2999	13.9	17.3	4.0	2.8
	\$3000-\$3999	21.4	2.2	17.1	0.0
	>\$4000	7.2	3.1	8.6	5.4
Sample Size	Unknown	574	95	229	209
	\$0	65	42	16	17
	\$1-\$499	60	41	14	5
	\$500-\$999	27	15	9	3
	\$1000-\$1999	39	20	11	8
	\$2000-\$2999	25	17	5	53
	\$3000-\$3999	20	7	12	31
	>\$4000	47	14	22	11

6.7: Conclusions

This chapter presented the results of the analysis into the characteristics of burglars and the distances they travelled to commit burglaries in order to achieve research objective two. In summary, the majority of offenders live in the eastern suburbs and in the central city. It was found that the majority of offenders were unemployed European teenage males who only committed one burglary. The greatest percentage of burglaries occurred in the afternoon on a Monday or Friday. Most offenders entered the property through locked windows or doors. The most common items stolen in burglaries were mainly electronic or audio-visual equipment. Victims living in low deprivation areas had a greater percentage of more expensive items stolen in burglaries than victims living in medium or high deprivation areas. Yet the amount stolen was found to be unrelated to the level of deprivation in which the victim lived. The distance travelled by offenders was found to be unrelated to the level of deprivation of the area in which the offender lived. However, the distance travelled by offenders was found to be related to the level of deprivation of the area in which the victim lived. Offenders who were male, Maori, aged between 20 and 29 years travelled the longest distances to commit a burglary. The longest average distances travelled to commit burglaries were also travelled by offenders who had committed more than one burglary and offenders who committed burglaries in groups. Overall, the distances travelled to commit burglaries increased for the study period.

The features of burgled properties in conjunction with the offender's characteristics affect where burglaries occur and how far an offender will travel to reach those properties. These features will be described in Chapter Seven.

Chapter Seven: Nature of the Targets

Characteristics of the physical environment are also associated with increased risks of burglary (Miethe and Meier 1994: 109-111)

7.1: Introduction

When analysing residential burglaries, it is important to investigate at which properties the burglaries occur, and what the characteristics of those properties are in order to enable a more complete analysis. Identifying these characteristics can aid in the identification of properties that are at risk of burglaries in the future. This chapter describes the results relating to the survey that was conducted on burgled properties and on the properties on either side of the burgled properties in order to achieve research objective three. It also describes the results of the features with relation to whether the burgled houses were in deprived or non-deprived areas. More specifically the first section of results relate to the differences between burgled and non-burgled properties with respect to the target hardening, defensible space and CPTED (Crime Prevention Through Environmental Design) features of the target survey. The second section will present the results, comparing burgled properties in deprived and non-deprived areas with respect to the target hardening, defensible space, CPTED and also the neighbourhood characteristics of the target survey.

7.2: Results of Burgled and Non-Burgled Properties

7.2.1: Target Hardening Features of Target Survey

The height of the fence that bordered the road of burgled and non-burgled properties was observed (Figure 7.1). The most common height of fence for burgled properties was found to be of knee height (50 cm) (25.8%). For non-burgled properties, it was found to be of shoulder height (150 cm) (28.7%). However, fence height did not appear to be an important discriminator between burgled and non-burgled properties. A greater percentage of non-burgled properties had no fences. The type of fence was also observed, and it was found that the most common type of fence, for both burgled and non-burgled properties, was a solid concrete/brick/stone fence (24.2% and 30.3% respectively). The next most common fence type was solid wood picket style (21.2% and 18.9% respectively) (Figure 7.2). None of the burgled properties had a corrugated iron fence, although 0.8% of non-burgled properties had a fence made from that material. Additionally none of the non-burgled properties had bar fences and 3% of burgled properties had bar fences.

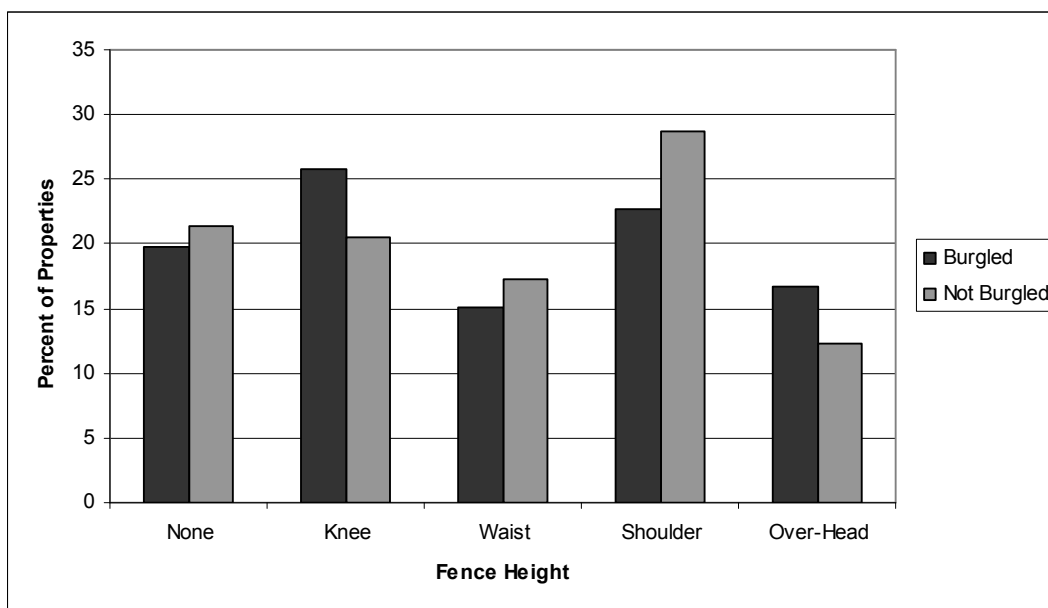


Figure 7.1: Percentage of Burgled and Non-Burgled Properties in Christchurch by the Height of the Fence that Borders the Road

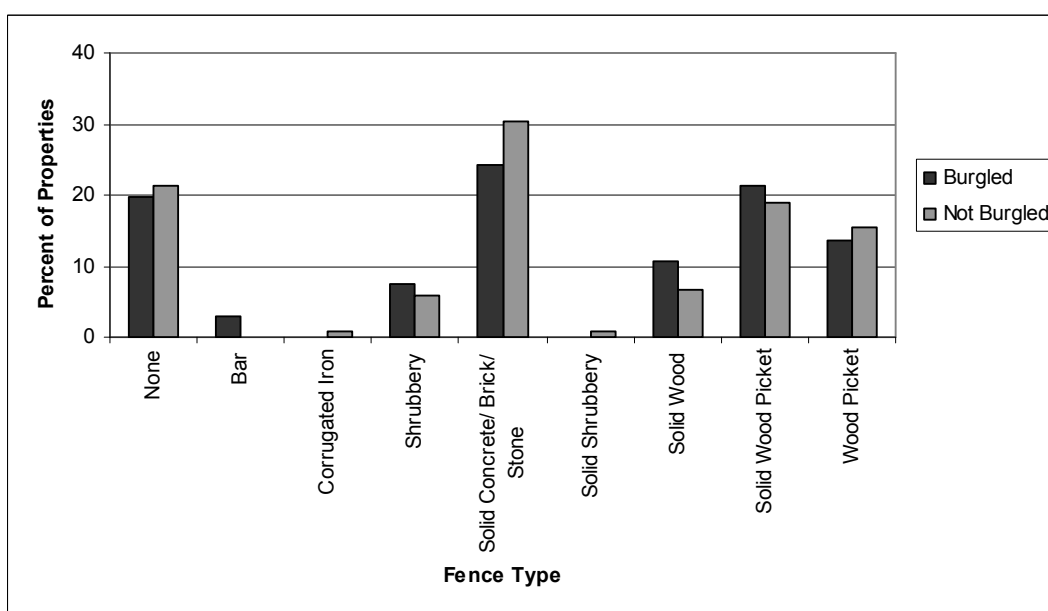


Figure 7.2: Percentage of Burgled and Non-Burgled Properties in Christchurch by the Fence Type that Borders the Road

Of the methods that could be observed that would target harden a property, such as dog ownership, presence of a security alarm or security lighting, the majority of the burgled and non-burgled properties did not show any signs of having dogs, which was determined by the presence of signs indicating dog ownership or observation of a dog on the property. Only 1.5% of burgled and 1.6% of non-burgled properties indicated they had dogs. Additionally, it was observed that less than a quarter of the burgled and non-burgled properties had a visible security alarm, although a greater percentage of burgled than non-burgled properties had an alarm (21.2%, 14.8% respectively). Also less than a quarter of properties had security lights, however, more burgled than non-burgled properties had security lights (18.2% and 15.6% respectively).

7.2.2: Defensible Space and CPTED Features of Target Survey

The analysis of the visibility of the inside of the houses from the street (to observe how obvious any valuables were, in order to see how attractive the properties would be to offenders) showed that none of the non-burgled properties had complete visibility of the insides of the houses, and the majority of the non-burgled properties had little to average visibility of the inside of their houses (Figure 7.3). Similarly, the majority of burgled properties had a visibility of little to average of the inside of their houses; however, a small proportion of burgled houses had complete visibility of the inside of their properties (1.5%). The visibility of the insides of properties showed greater variation for burgled properties than the non-burgled properties.

A greater percentage of non-burgled than burgled properties had no entry points visible from the street (14.8% compared to 4.5%) (Figure 7.4). This difference is quite noticeable; thus, it could be assumed that if a property has entry points visible from the street, it is more likely to be burgled than a house that has no entry points visible. The greatest majority of properties for both burgled and non-burgled properties had windows visible (66.7% and 59.8% respectively). Also more burgled than non-burgled properties had all types of entry points visible (9.1% compared with 3.3%). These entry points included windows, doors and garages. Similar percentages of burgled and non-burgled properties had solely garages, as entry points visible (4.1% and 4.5% respectively).

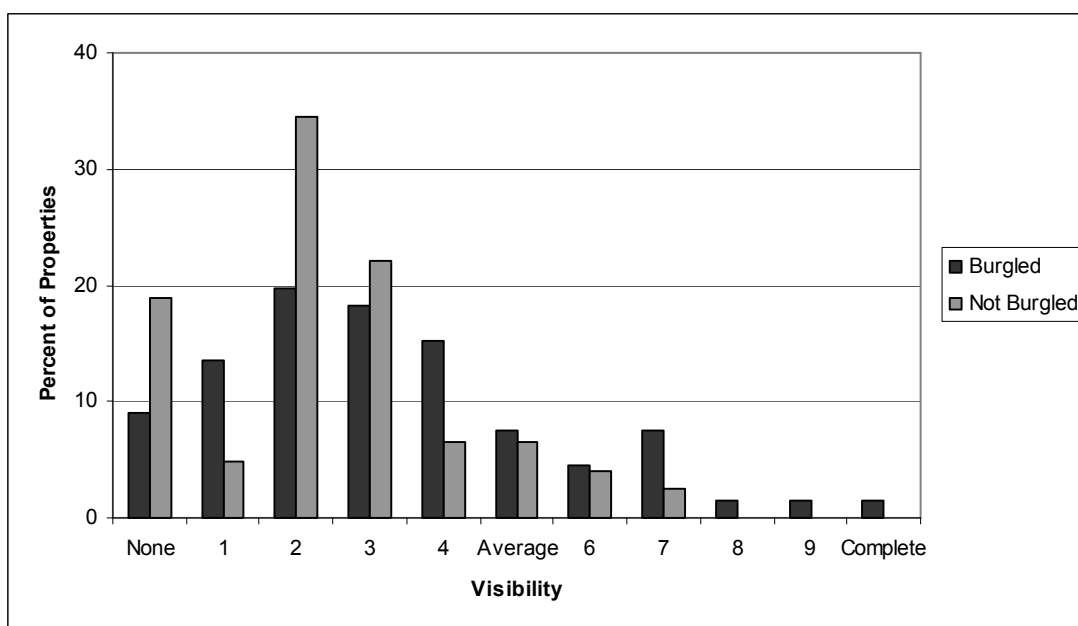


Figure 7.3: Percentage of Burgled and Non-Burgled Properties in Christchurch by Varying Visibility of the Inside of the Houses on those Properties

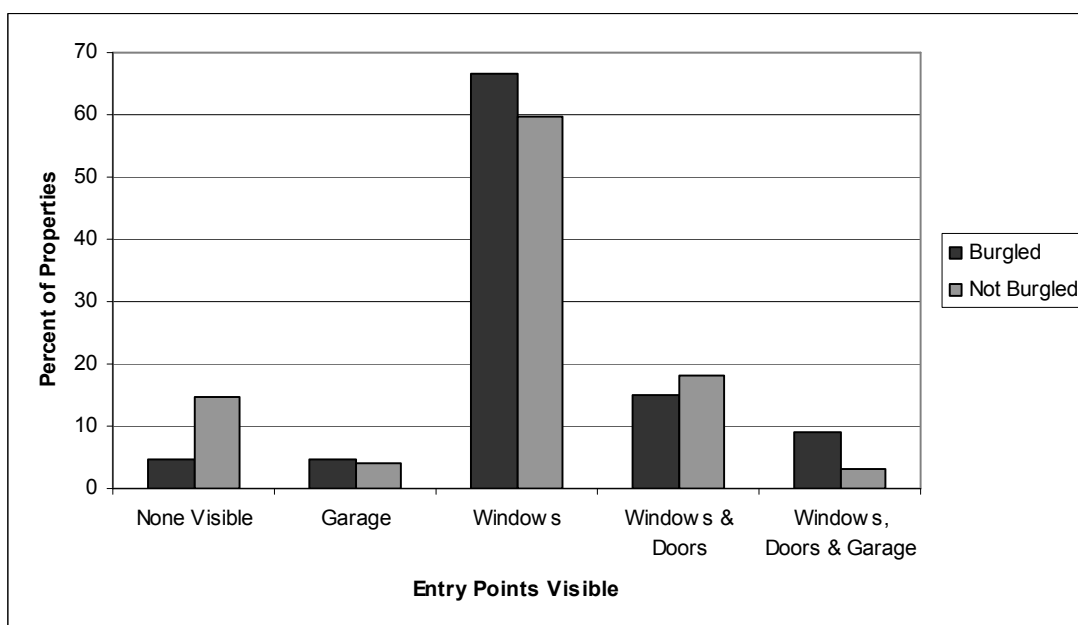


Figure 7.4: Percentage of Burgled and Non-Burgled Properties in Christchurch by the Entry Points that are Visible from the Street

Of the windows that were visible, the sizes of them were observed and categorised into small, medium and large. Large windows were considered as full-length windows, medium sized windows were considered windows that were half the size of large windows, and small windows were deemed to be half the size of medium windows. More of the non-burgled than burgled properties did not have windows visible, but of the non-burgled properties that did have windows visible, a greater percentage of them had more medium sized windows visible than the burgled properties (74.6% compared to 72.7%). A greater percentage of burgled properties than non-burgled properties had small windows (7.6% compared with 3.3%) or large windows visible (12.1% and 4.9% respectively).

Considering the windows and doors that were visible, whether or not they were surrounded by shrubbery was observed (Figure 7.5). From those observations, it was apparent that a greater percentage of non-burgled than burgled properties had only windows surrounded by shrubbery (18.0% and 15.2% respectively). Greater percentages of burgled properties had shrubbery surrounding both windows and doors and in other cases solely doors (10.6% and 3.0% respectively) than did the non-burgled properties (5.7% and 0% correspondingly).

The shrubbery surrounding the windows and doors provided hiding places for offenders, but any features of the properties that could be defined as hiding spaces in their own right were also identified. The hiding places identified included fences, garages, trees and shrubbery (Figure 7.6). Of these hiding places the most common for both burgled and non-burgled properties were solely fences (40.4% and 32.9% respectively), followed by fences and shrubbery combined, for non-burgled properties (17.8%), and solely shrubbery for burgled properties (19.2%). None of the identified hiding places were present at 26.7% of burgled and 67.1% of non-burgled properties, thus a greater percentage of burgled properties had hiding places than did non-burgled properties.

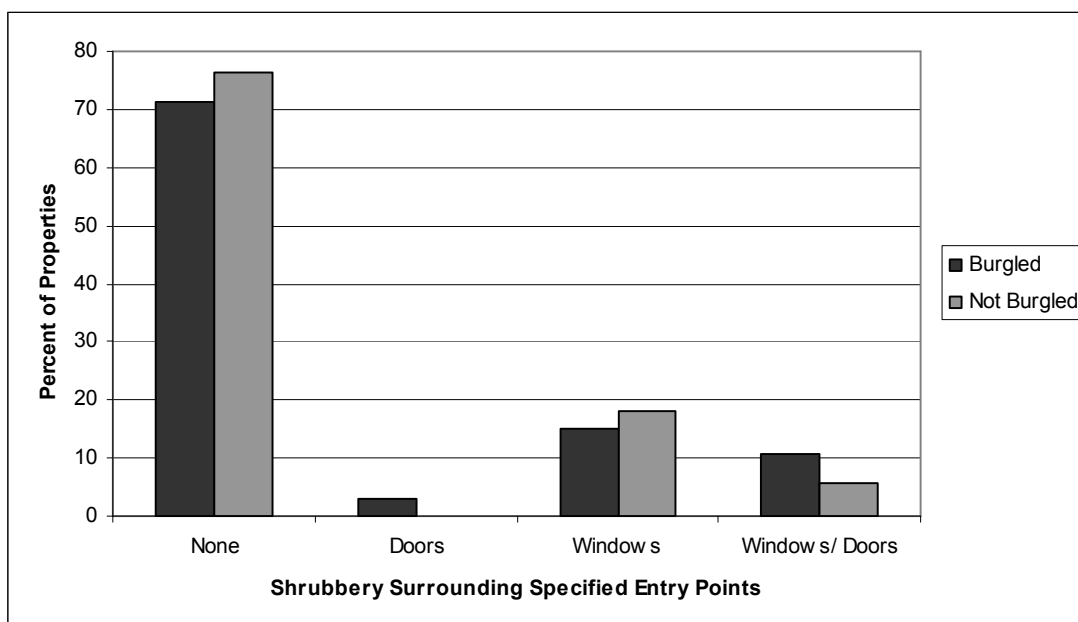


Figure 7.5: Percentage of Burgled and Non-Burgled Properties in Christchurch by the Presence of Shrubby Surrounding the Specified Entry Points

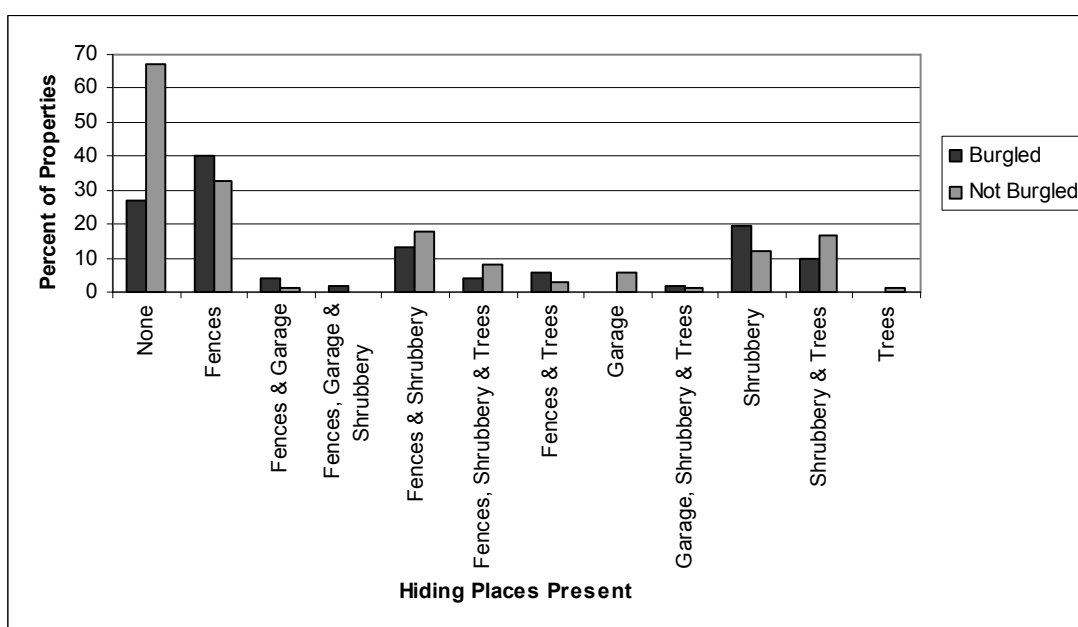


Figure 7.6: Percentage of Burgled and Non-Burgled Properties in Christchurch by the Hiding Places that are present on those Properties

Surveillability is important in creating defensible spaces. Accordingly, whether the properties were overlooked by their neighbours was considered. It was found that slightly more non-burgled than burgled properties were overlooked by neighbouring properties (99.2%, 97.0% respectively). The position of the properties along their streets was observed, and Figure 7.7 illustrates that the majority of the properties surveyed were centrally positioned along a street (72.7% of burgled and 77.9% of non-burgled properties). In addition, a greater percentage of burgled than non-burgled properties were houses on street corners that did not have a street corner on the opposite side of the road to them (6.1%, 5.7% correspondingly). Also a greater majority of burgled than non-burgled properties were one property from the street corner and did not have a street corner on the opposite side of the road to them (9.1% and 3.3% respectively).

Similar percentages of burgled and non-burgled properties had adequate street lighting (97.0% and 97.6% respectively). The adequacy of the street lighting was based on whether there was a street light within 10 metres of the property. Additionally, the majority of the properties did not have an alleyway beside them (98.5% of burgled and 98.4% of non-burgled properties).

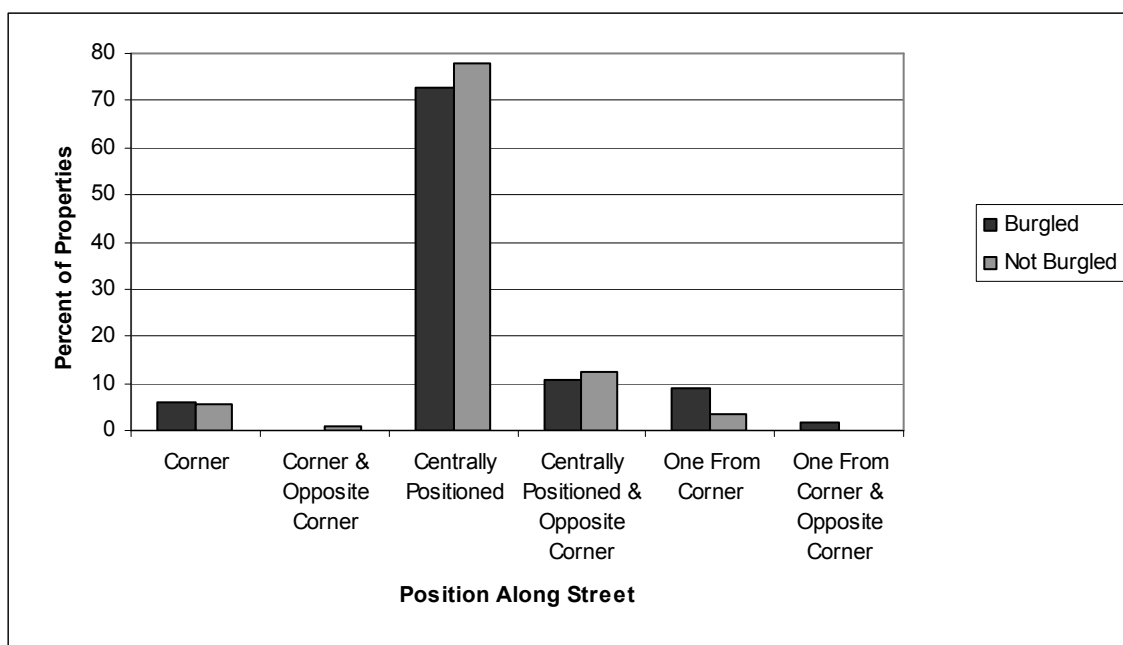


Figure 7.7: Percentage of Burgled and Non-Burgled Properties in Christchurch by the Position of those Properties along the Street

The type of houses on the properties was observed, and it was found that the greatest majority of the burgled properties were detached houses (84.9%), as did the non-burgled properties (75.4%), the next most common type of non-burgled house was the back-section (13.9%). Similar proportions of burgled and non-burgled properties were flats (7.6% and 8.2% respectively). The least common house type for both burgled and non-burgled properties was semi-detached (3.0% and 2.5% respectively), which is not surprising because only a very small number of Christchurch properties are semi-detached.

The approximate distance from the street to the houses on the properties was estimated for both the burgled and non-burgled properties (Figure 7.8). Burgled properties were to be closer overall to the street than non-burgled properties. The most common distance from the road that burgled properties were situated was approximately three metres (37.9%) which was also the case for non-burgled properties (36.9%). The least common distance from the house to the road was approximately two metres both for burgled and non-burgled properties (3.0%, and 1.6% respectively). A greater percentage of properties at each distance were burgled properties, except for the back-section properties, where a greater percentage of those properties were non-burgled (16.4% compared to 4.5%).

The overall appearance of all of the properties was observed, and judged to be: very well kept, well kept, averagely kept, not well kept or very rundown (Figure 7.9). Similar percentages of burgled and non-burgled properties were well kept in appearance, although a greater percentage of the well kept properties were burgled (37.9% and 36.1% respectively). In addition, a greater percentage of the burgled properties were very well kept in comparison to non-burgled properties (10.6% and 4.9% respectively). Additionally, there was approximately 10% between the percentage of non-burgled properties and burgled properties that appeared averagely kept (37.7% compared to 27.3%). None of the non-burgled properties appeared very rundown, but 1.5% of the burgled properties were.

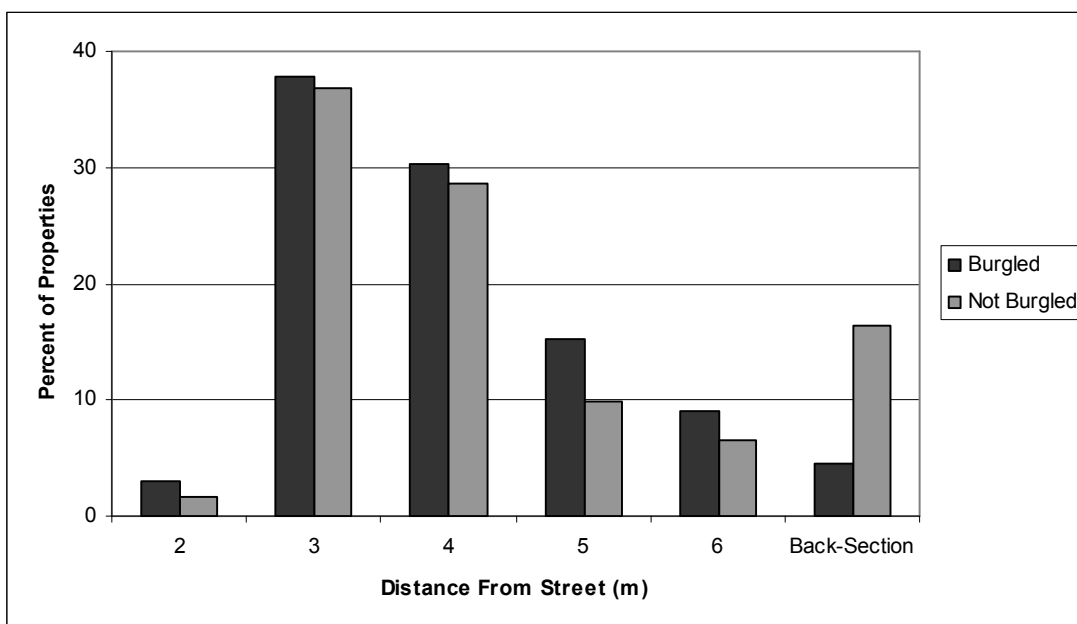


Figure 7.8: Percentage of Burgled and Non-Burgled Properties in Christchurch by the Distance of the House from the Street

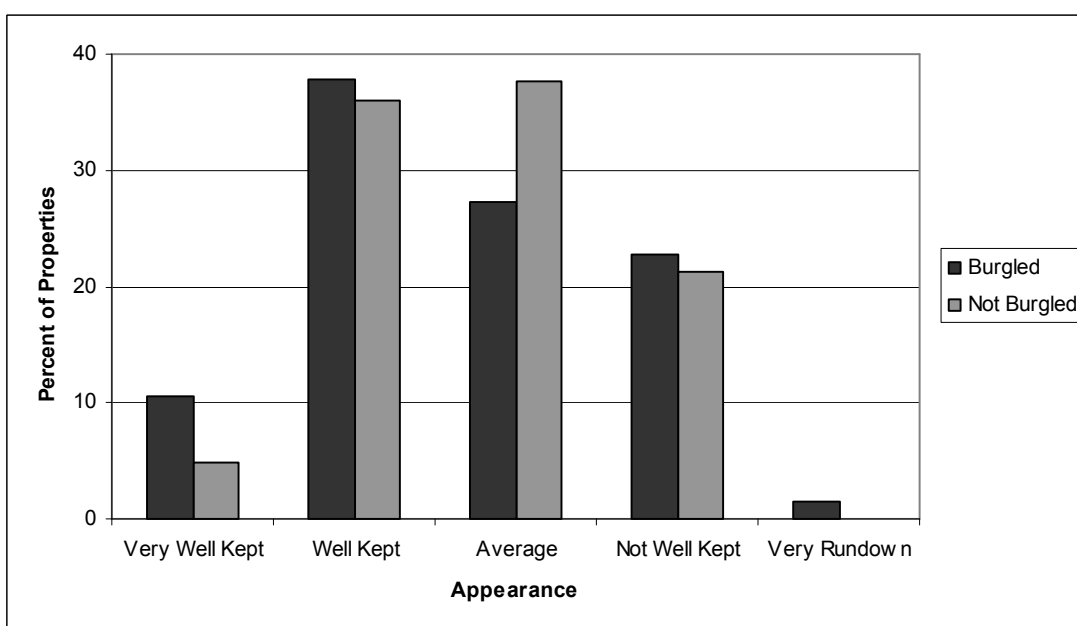


Figure 7.9: Percentage of Burgled and Non-Burgled Properties in Christchurch by the Overall Appearance of those Properties

7.3: Results of Burgled Properties in Deprived and Non-Deprived Areas

7.3.1: Target Hardening Features of Target Survey

All of the results for the burgled properties regarding the target hardening aspects of the target survey were also analysed with respect to whether the properties were in deprived or non-deprived areas. Deprived areas were deemed to be any properties in areas with a deprivation decile of seven or greater. The first aspect that was reanalysed was the height of the fences of burgled properties (Figure 7.10). The majority of burgled properties in non-deprived areas had fences that were over head height (27.8%) and that the percentage of burgled properties in non-deprived areas with fences over head height was vastly larger than the percentage of burgled properties in deprived areas with the same fence height (3.3%). In addition, the same percentage of burgled properties in deprived areas had the fences of knee, waist and shoulder height (26.7%).

In examining the types of fences that burgled properties had, it was found that a greater majority of deprived properties than non-deprived properties had no fence at all (26.7% compared to 13.9%) (Figure 7.11). The most common type of fence for both burgled properties in deprived and non-deprived areas was found to be a solid concrete/brick/stone fence, although a greater percentage of the burgled properties in non-deprived areas had a solid concrete/brick/stone fence (30.6% compared with 20.0%). Additionally it was found that a greater percentage of burgled properties in deprived than non-deprived areas had shrubbery or solid shrubbery fences (10.0% and 3.3% respectively for burgled properties in deprived areas, and 8.3% and 2.8% for non-deprived).

Of the burgled properties, it was found that a greater percentage of burgled properties in deprived areas than burgled properties in non-deprived areas displayed signs of having security alarms (23.3% compared to 19.4%). Conversely, a greater percentage of burgled properties in non-deprived than in deprived areas had security lighting visible (25% compared to 10%). In addition, it was found that all of the properties that indicated they had dogs were in deprived areas (3.3%).

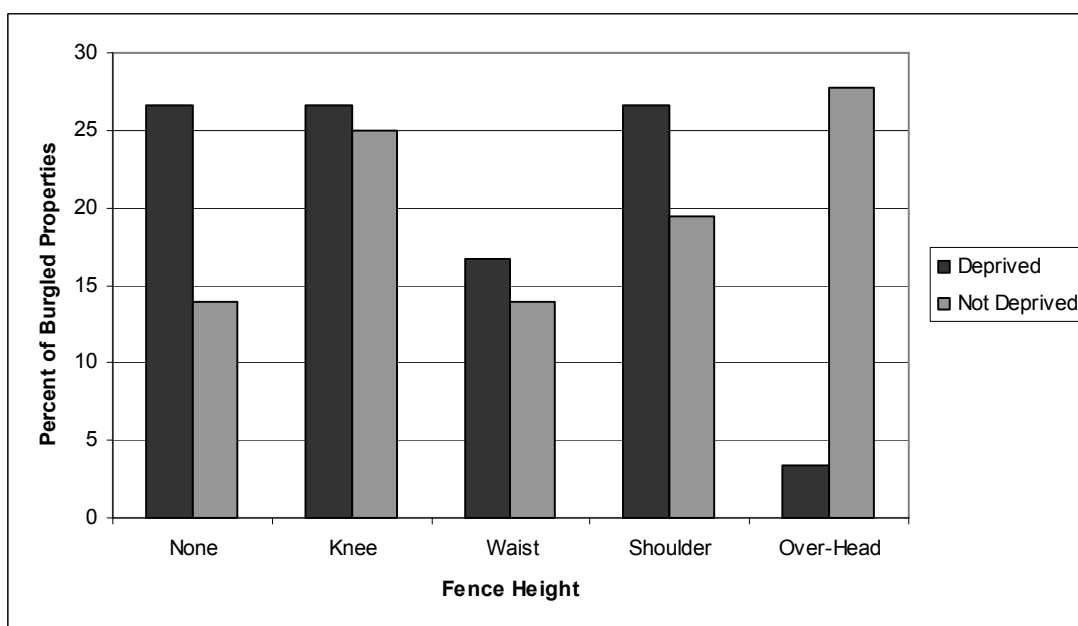


Figure 7.10: Percentage of Burgled Properties in Deprived and Non-Deprived Areas in Christchurch by the Height of the Fence that Borders the Road

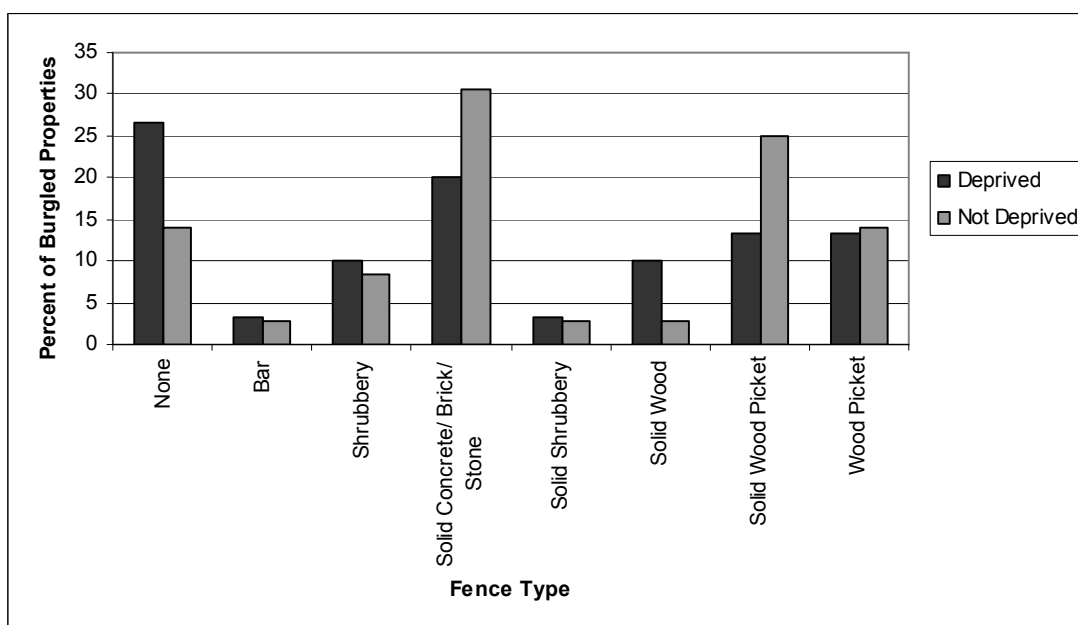


Figure 7.11: Percentage of Burgled Properties in Deprived and Non-Deprived Areas in Christchurch by the Fence Type that Borders the Road

7.3.2: Defensible Space and CPTED Features of Target Survey

The first aspect of the defensible space and CPTED features of the target survey that will be presented with regard to the deprivation of the burgled property is the visibility of the inside of the property from the street, that is how visible valuables inside the property were (Figure 7.12). It was found that the burgled properties in non-deprived areas overall had less visibility of the inside of their houses, and the burgled properties in deprived areas overall had a greater visibility of the inside of the properties. The level of visibility of the valuables inside the burgled properties in deprived areas was more variable than the level of visibility of the valuables inside the burgled properties in non-deprived areas. A greater percentage of the burgled properties in deprived than the non-deprived areas had no valuables inside of their houses visible (13.3% and 5.6% respectively). A greater percentage of the burgled properties in the deprived than the non-deprived areas also had complete visibility of the valuables inside their houses though (3.3% compared with 0%).

The entry points that were visible from the street were also analysed with respect to the deprivation of the area in which the burgled property was located, which led to the findings that the greatest majority of both burgled properties in deprived and non-deprived areas had windows visible (69.0% and 77.4% respectively) (Figure 7.13). It was also found that a greater percentage of burgled properties in non-deprived than deprived areas had all entry points visible (16.1% compared with 3.4%) None of the burgled properties in deprived areas had no entry points visible, but 9.7% of the burgled properties in non-deprived areas had no entry points visible.

Of the windows that were visible, the sizes were examined, and the largest percentage of burgled properties in deprived and non-deprived areas had medium sized windows visible (70.0% and 69.4% respectively). A greater percentage of burgled properties in non-deprived than deprived areas had small windows visible (8.3% compared to 6.7%). Additionally more burgled properties in non-deprived areas than deprived areas had no windows visible (8.3% and 6.7% respectively). However, a greater percentage of burgled properties in deprived than non-deprived areas had large windows visible (16.6% compared to 14.0%).

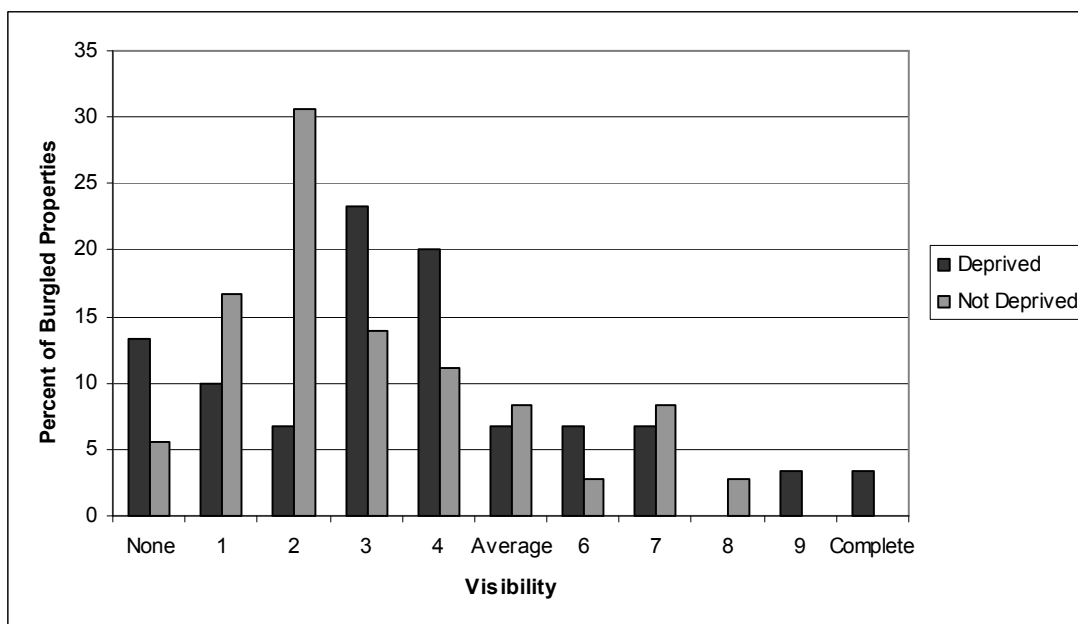


Figure 7.12: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Visibility of the Inside of the Properties

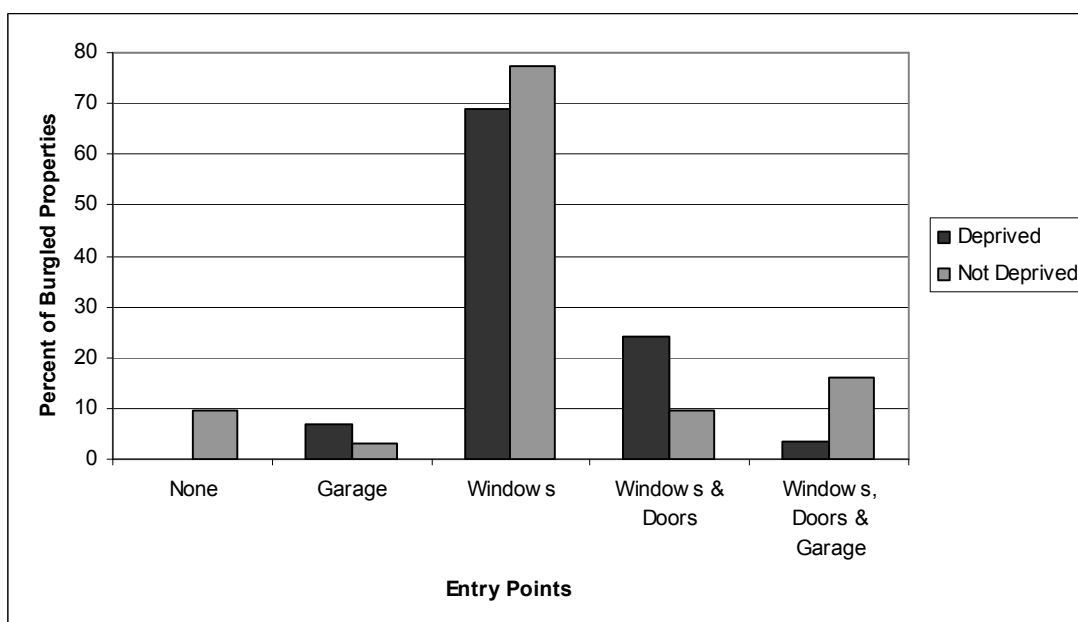


Figure 7.13: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Visibility of Entry Points on the Properties

Of the entry points that were visible, it was observed that if any of them were surrounded by shrubbery, any differences between properties in deprived or non-deprived areas were also identified (Figure 7.14). From the analysis it was evident that a greater percentage of the burgled properties in non-deprived than deprived areas had shrubbery surrounding just the windows (5.6% and 0% respectively), and only doors (16.7% compared to 13.3%). Additionally it was found that a greater percentage of burgled properties in deprived than non-deprived areas had shrubbery surrounding both windows and doors (13.3% and 8.3% respectively).

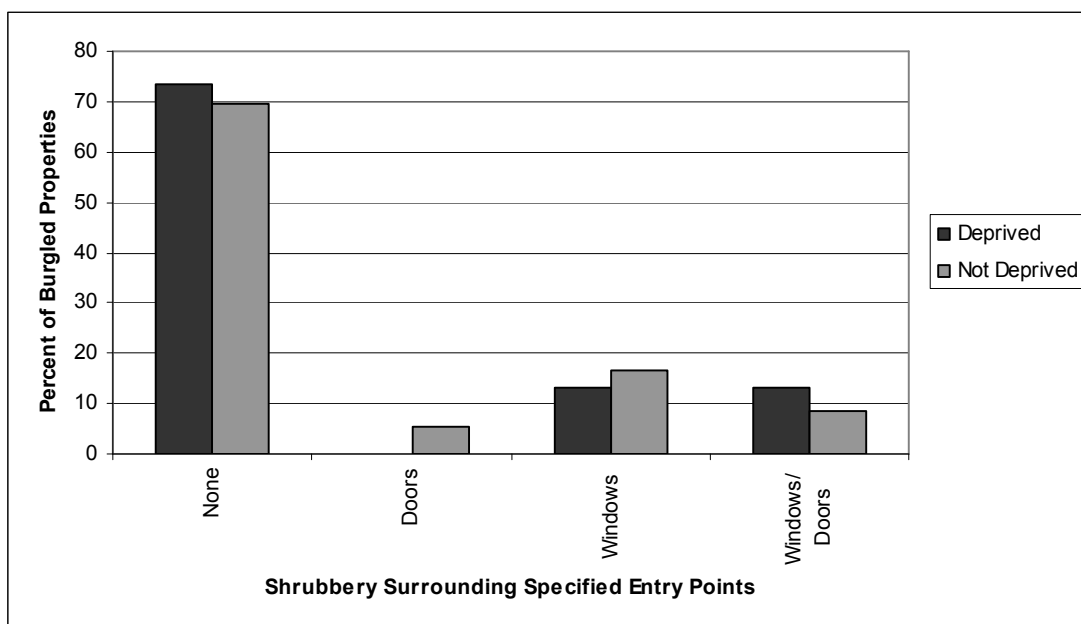


Figure 7.14: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by which Entry Points were Surrounded by Shrubby

The hiding places that were present on burgled properties were also related to whether the area that the burgled property was in was deprived or not (Figure 7.15). A greater percentage of burgled properties in deprived than non-deprived areas had no hiding places (26.7% compared to 16.7%). The majority of burgled properties both within deprived and

non-deprived areas only had fences that acted as hiding places (30% and 33.3% respectively). The next most common hiding place present on both burgled properties in deprived and non-deprived areas was found to be shrubbery (10% and 19.4% respectively).

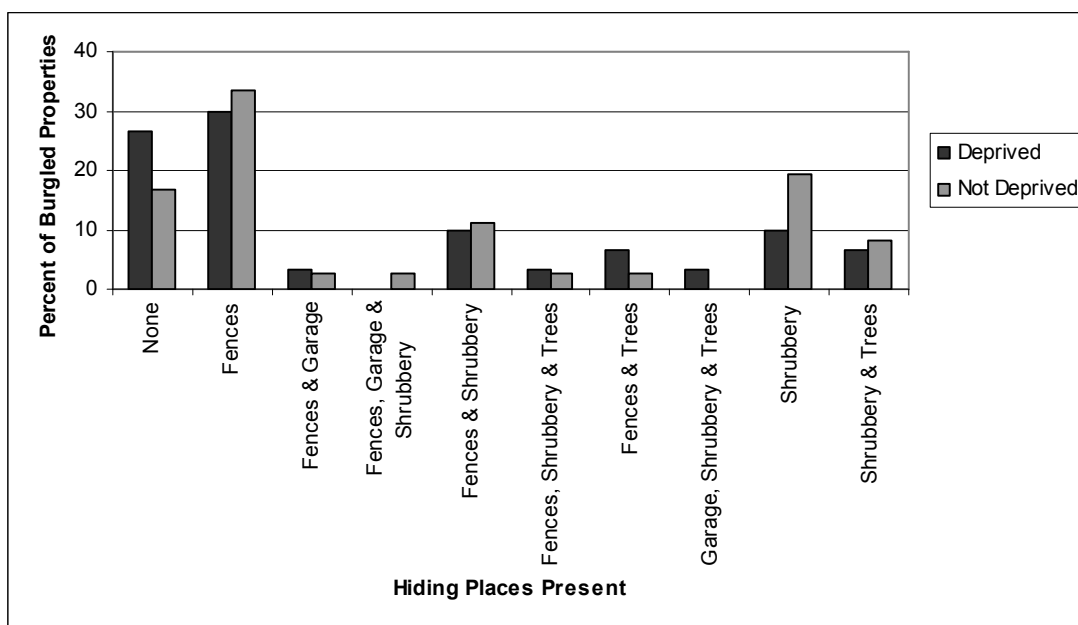


Figure 7.15: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Hiding Places that were Present

As surveillability is an important concept in creating defensible space, which was also related to deprivation of the area in which the burgled properties were located, a slightly higher percentage of burgled properties in non-deprived than deprived areas were overlooked by neighbouring properties (97.2% and 96.7% respectively). Additionally the majority of the burgled properties in both deprived and non-deprived areas had adequate street lighting (96.7% and 97.2% respectively). The majority of burgled properties in both deprived and non-deprived areas were not beside an alleyway (100% and 97.2% correspondingly).

Figure 7.16 illustrates the position of the properties along the street. The majority of burgled properties in deprived and non-deprived areas were centrally positioned along the street (82.1% and 73.5% respectively). A greater percentage of the burgled properties in deprived than non-deprived areas were located on street corners (7.1% and 5.9% respectively) or on properties that were one property from the street corner (10.7% and 8.8% respectively).

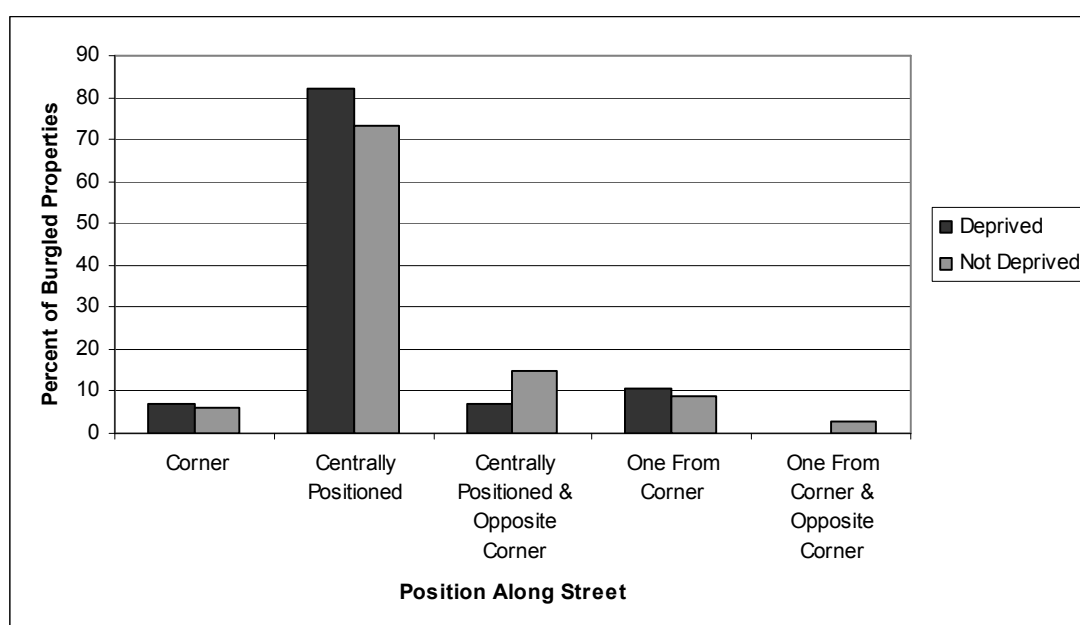


Figure 7.16: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Position of the Property along the Street

In examining the type of house that was burgled and the deprivation of the area in which they were located, the results demonstrate that the majority of burgled properties in both deprived and non-deprived areas were detached (80.0% and 88.8%) (Figure 7.17). It was also found that none of the burgled properties in deprived areas had semi-detached houses, however 5.6% of burgled properties in non-deprived areas had semidetached houses. A greater percentage of burgled properties in deprived than non-deprived areas were flats

(13.3% compared with 2.8%). In addition, a greater percentage of burgled properties in deprived than non-deprived areas were back-sections (6.7% and 2.8% respectively).

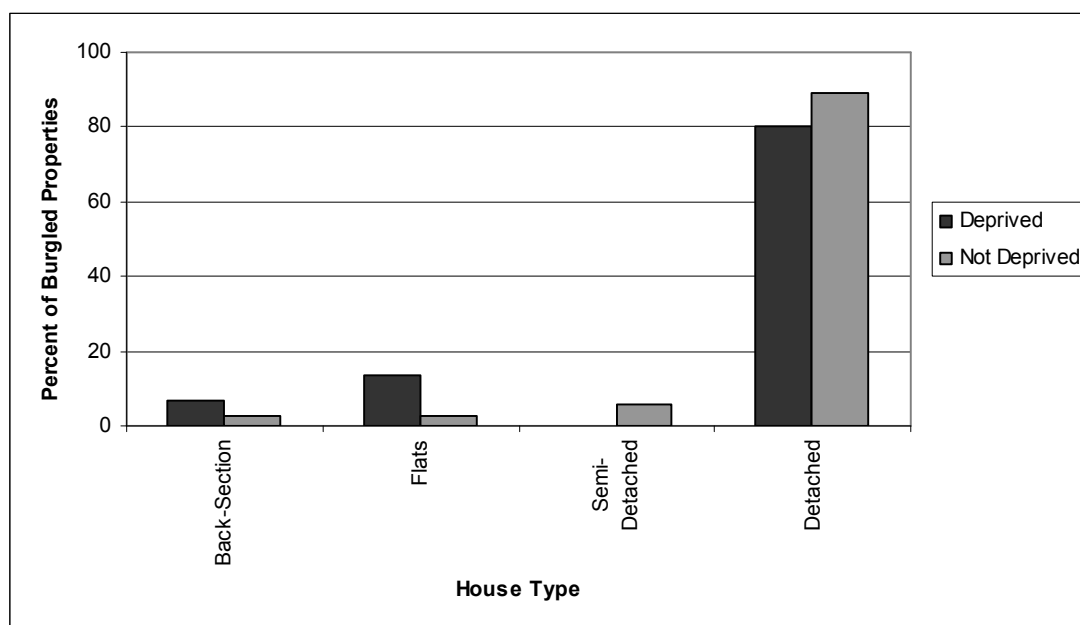


Figure 7.17: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Type of House

When examining the approximate distance of the house from the road, it was found that the greatest majority of burgled properties in both deprived and non-deprived areas were approximately three metres from the road (43.3% and 33.3% respectively) (Figure 7.18). A greater percentage of burgled properties in non-deprived than deprived areas were approximately six metres from the road (13.9% and 3.3% respectively), or were back-sections (5.6% and 3.3% respectively).

Also important is the overall appearance of the burgled property (Figure 7.19). The majority of burgled properties in deprived and non-deprived areas were well kept (36.7% and 38.9% respectively). A greater percentage of burgled properties in non-deprived than deprived areas were very well kept (16.7% compared to 3.3%); also a greater percentage of properties in deprived than non-deprived areas were very rundown (3.3% compared to 0%).

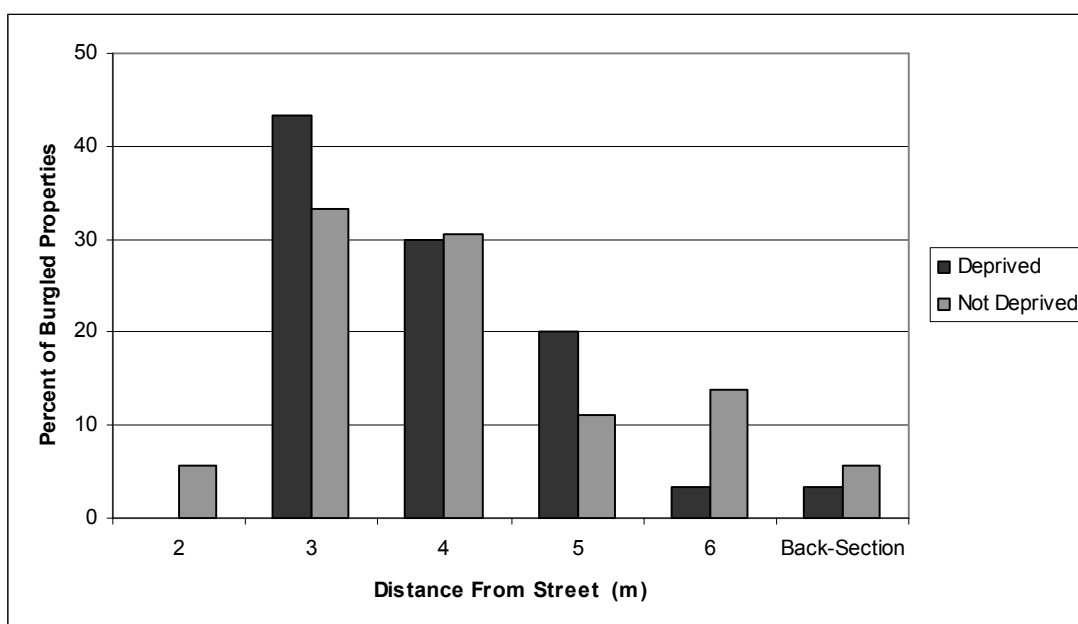


Figure 7.18: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Distance of the House from the Street

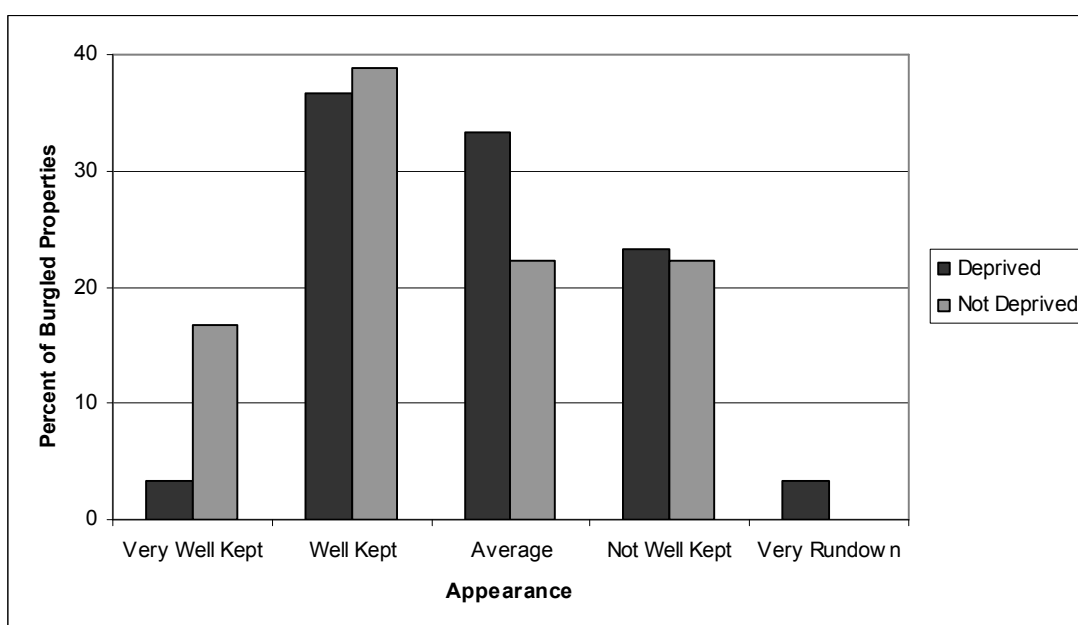


Figure 7.19: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Overall Appearance of the Property

7.3.3: Characteristics of the Neighbourhoods of Burgled Properties

The first of the neighbourhood characteristics observed were the type of areas in which the burgled properties were located (Figure 7.20). The majority of the burgled properties in deprived and non-deprived areas were located in solely residential areas (82.8% and 91.4% respectively). In addition, a greater percentage of burgled properties in deprived than non-deprived areas were in solely commercial areas (3.4% and 0% respectively). Related to area type is the type of street on which the property was located (Figure 7.21). The majority of burgled properties in deprived and non-deprived areas were located on quiet streets (62.1% and 48.6% respectively). A greater percentage of burgled properties in deprived than non-deprived areas were located on main roads (27.6% compared to 22.9%). Additionally a larger proportion of burgled properties in non-deprived than deprived areas were located on cul-de-sacs (11.4% and 3.4% correspondingly)

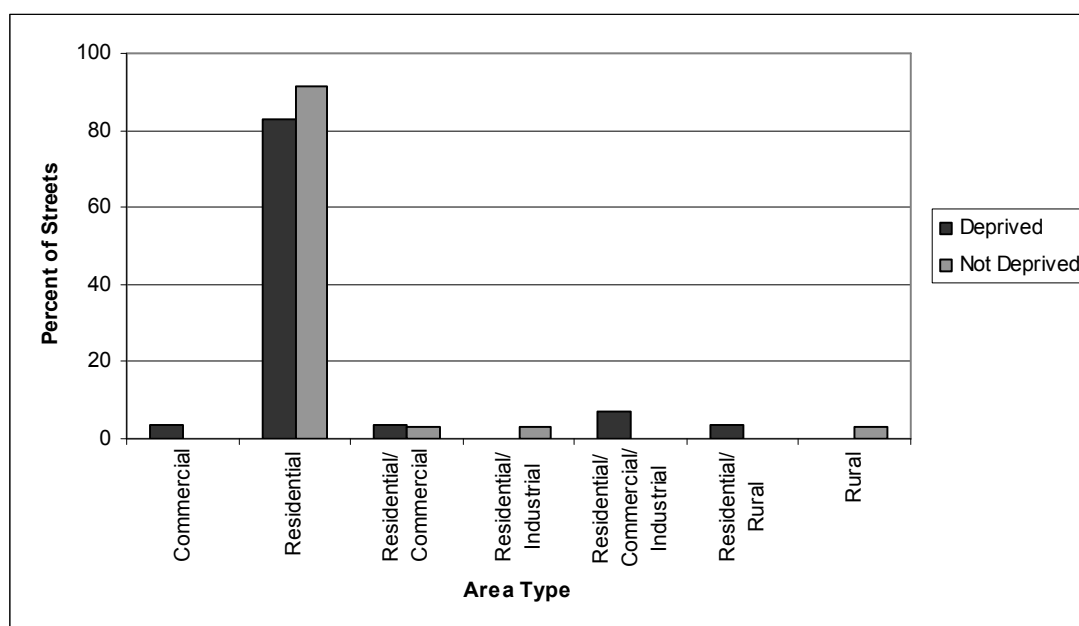


Figure 7.20: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Type of Area in which they were Located

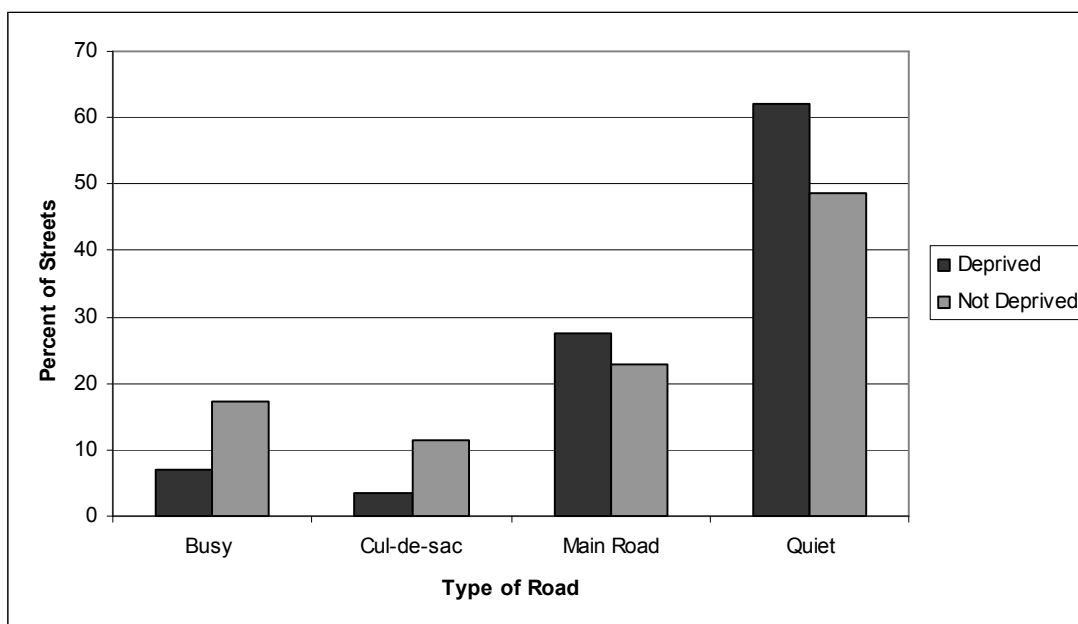


Figure 7.21: Percentage of Burgled Properties in Deprived and Non-Deprived Areas for Christchurch by the Type of Street on which they were Located

The percentage of burgled properties within two blocks of specific land-use types was analysed (Figure 7.22). It was found that the greatest percentage of burgled properties in deprived and non-deprived areas were not located within two-blocks of any of the specified land-use types (40% of burgled properties in deprived and 58.3% of properties in non-deprived areas). Of the burgled properties that were within two-blocks of the specified land-use types, the greatest percentage of burgled properties in deprived areas were within two blocks of a park (13.3%) or a river (13.3%). Of the burgled properties in non-deprived areas, it was found the greatest percentages were within two blocks of a park.

The final aspects of the neighbourhoods of burgled properties that were observed was whether or not the properties were in neighbourhood watch areas, and whether or not there was graffiti along the streets that the properties were located on. A greater percent of burgled properties in deprived than non-deprived areas were in neighbourhood watch areas (20.7% and 11.4% respectively). In addition, a greater percent of burgled properties in deprived areas had graffiti present along the street (34.5%), than did the burgled properties in non-deprived areas (25.7%).

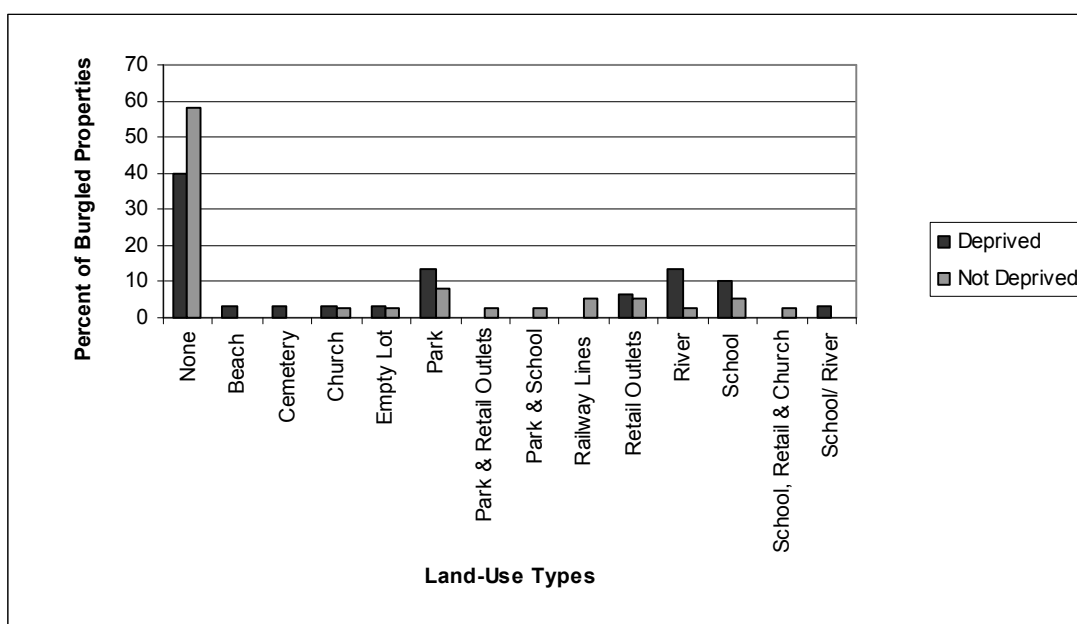


Figure 7.22: Percentage of Deprived and Non-Deprived Burgle Properties within Two-Blocks of Specified Land-Use Types for Christchurch

7.4: Conclusions

This chapter presented the results associated with research objective three, which was to investigate the features and characteristics of burgled and non-burgled properties. The characteristics of the burgled properties were also related to whether the property was in a deprived area or not. Overall, there were some significant differences between burgled and non-burgled properties. Burgled properties had a greater level of visibility of the insides of their houses. More non-burgled than burgled properties had no hiding places, while the burgled properties were more likely to be very well kept compared to the non-burgled properties. There were also significant differences between burgled properties in deprived and non-deprived areas. For instance, more of the burgled properties in deprived than non-deprived areas had security alarms. A greater percent of the burgled properties in deprived than non-deprived areas had no hiding places and more of the burgled properties in deprived than non-deprived areas were flats. In addition, most of the burgled properties were located on quiet streets that were not in Neighbourhood Watch areas. The results presented in this chapter will now be discussed in detail in Chapter Eight, in conjunction with the results from Chapters Five and Six.

Chapter Eight: Discussion

8.1: Introduction

The analysis described in Chapters Five to Seven brought to light many key themes. The themes interrelate with the three original research objectives. The aim of research objective one was to identify spatial and temporal trends in the burglary and clear-up rates in Christchurch. The key themes related to this research objective were the spatial and temporal distribution of burglaries and clear-up rates and how the results relate to levels of deprivation. These themes are important because they allow a comparison between the results of the present study and international research in order to identify how similar the geography of burglary in Christchurch is to the geography of burglary in other countries. Research objective two was aimed at identifying the characteristics of burglars and the distances they travel to burgle. The themes relating to this research objective are the demographic characteristics of burglars and the distances they travel. Analysis of the distances travelled by offenders is particularly important as the distances have not been explored with regard to the many factors that can influence them. The third research objective was to identify the characteristics of burgled properties. Some key observations are made and discussed in relation to the characteristics of the burgled properties.

8.2: The Geography of Burglary

The identification of any spatial or temporal patterns of burglaries in Christchurch was the first research objective. The predominant trend examined was the link between burglary rates and deprivation, and how the link relates to high burglary rates in the inner city. The trend will be discussed with respect to how it compares with previous research and which of the geographical approaches it is most closely linked with.

As stated in Chapter Five there was a positive correlation between burglary rates and deprivation, meaning that the highest rates of burglary occurred in the most deprived areas of Christchurch. The highly deprived areas with high burglary rates included areas to the east of the central city and the central city itself; both areas with highly transient populations.

The spatial distribution of burglaries and the relationship between deprivation and burglary rates can be supported by previous research (Davidson 1980, Prosser 1996). Davidson (1980) and Prosser (1996) both found that the inner city had high burglary rates as did the east and south of the city, which indicates that there are temporal consistencies in the spatial distribution of burglaries in Christchurch over a 25 year period. Furthermore, Davidson (1980) stated that the eastern areas suffered more from burglaries than western suburbs, supporting the relationship between burglaries and deprivation. Davidson (1980) found that Fendalton and Cashmere were in less deprived areas and had a very low burglary risk, whereas Linwood, Addington and Sydenham were highly deprived areas and had a very high burglary risk. The distribution described by Davidson (1980) is extremely similar to that described in Chapter Five, illustrating how the spatial distribution of burglaries has remained constant in Christchurch over a period of approximately 20 years. This consistency is most likely because there have been minimal changes in urban structure other than urban sprawl.

International studies have also supported the spatial concentration of burglaries in the central city. In British cities, the central city has the highest risk of residential burglary (Evans 1989). Reppetto (1974) found that in Boston the central city and adjacent areas had high burglary rates, with the rates decreasing as the distance from the city centre increased. The high burglary rates in the inner city could be due to the high levels of deprivation. However, Cater and Jones (1989) found that the high rate of burglary in the central city may be unrelated to deprivation levels in the central city. They found that the central city had high rates of burglary even when controlling for socio-economic factors, such as deprivation.

The correlation between burglary rates and central city locations can be supported by theories of anomie and social disorganisation. The basic tenet of the social disorganisation theory is that zones in transition are areas where young people, who do not have high paying jobs and who are highly transient, live (Wirth 1944). The lack of social control in modern society, which is a significant indicator of anomie and social disorganisation, can lead to high burglary rates (Wirth 1940). These areas are often close to, or in, the central

city, meaning that they have high burglary rates (Wirth 1944, Brantingham and Brantingham 1984, Johnston 1986, Pacione 1997, Knox and Pinch 2000, White and Haines 2001, Parker 2004). The population of the central city of Christchurch closely mimics the population described by the zones in transition theory, as Christchurch has an area surrounding the CBD that contains a young, highly transient population that lacks social control. Thus, the zones in transition and anomie theories provide a valid explanation for the high rates of burglary in central Christchurch.

8.3: The Geography of Clear-Up Rates

The second part of research objective one was to identify spatial and temporal trends in clear-up rates. The trends can be used to identify areas in which the police are, or have been, focussing their attention and to determine how effective the policing strategies are in improving clear-up rates. The areas that require more attention can also be identified by the clear-up rates.

The results in Chapter Five illustrated that there was an overall increase in burglary rates and that the clear-up rates were highest in less deprived areas. Spatially, the central city had lower clear-up rates than the outer areas of Christchurch. The highest clear-up rates were located in the far south-east, and the north-west of the city. An explanation for the spatial distribution of burglaries is that the central city had the highest rates of burglary, so the clearing-up of one or two burglaries in areas with numerous burglaries would result in a low clear-up rate. Whereas if the burglary rate was lower, as it was in suburban areas, the clearing-up of one or two burglaries would result in a very high clear-up rate. The inner city, which had a greater number of burglaries, had lower clear-up rates. In addition, there was no significant relationship between clear-up rates and deprivation. It was difficult to compare the relationship between deprivation and clear-up rates with international literature as there have been very few studies into clear-up rates and how they relate to deprivation. In contrast to the results reported in Chapter Five, Davidson (1980) found no relationship between clear-up rates and deprivation in Christchurch.

Even though the clear-up rates were low, they still increased for Christchurch over the three-year study period. The largest increases were in areas where the clear-up rates were initially the lowest. This increase in clear-up rates was contrary to previous studies. For instance, the clear-up rates reported for England and Wales showed a decrease in rates over the last 20 years (Evans 1999). The lack of agreement between the studies could be that the police in Christchurch are becoming more effective in their clear-up strategies. It also could be due to the fact that the clear-up rates reported in this thesis only cover a period of three years and may just be an anomaly in a long-term trend.

8.4: Characteristics of the Burglaries

8.4.1: When do they occur?

Further discussion of the temporal patterns of burglaries in Christchurch is necessary to achieve research objective one. Specifically, the time of day, day of the week and month of year that burglaries occur are discussed. The main findings were that there were no seasonal trends, but there were small-scale temporal trends. These findings are important as they can provide insight into the types of offenders committing burglaries in Christchurch, for instance, whether offenders are more likely to be opportunistic or experienced or a combination of both.

As stated in Chapter Six, a higher percentage of burglaries occurred during the traditional workweek, during traditional work times. More specifically, the most common part of day for burglaries to occur was between 12:00 and 18:00, and the most common days were Monday to Friday. The results relating to seasonal trends in Chapter Six showed that there were no significant seasonal trends in burglaries in Christchurch and there is very little variation in the distribution of burglaries between the months.

There has been minimal previous research done into the small-scale spatial trends in Christchurch, meaning that this research breaks new ground in this area. The reasons for the greatest percentage of burglaries occurring during the Monday to Friday 08:00 to 18:00 work week is most likely because that is when the majority of people are out at work. These

findings are consistent with other studies in Australia and the US which also found that most burglaries occur during the day (Ratcliffe 2001, Weisel 2002). The temporal dimension of burglaries can be supported by the opportunity theory because the opportunities to commit burglaries change over time. There are greater opportunities to burgle houses during the week, when the majority of people are usually at work (Cater and Jones 1989, Rengert et al 1999). The rational choice theory is also a component of the temporal dimension of burglaries. The reason it is important is because an offender makes a rational choice to burgle a house, generally based on the time that the risks will be the lowest for the offender, such as when the house is unoccupied (White and Haines 2001, Lu 2003). Under this theory, it could be suggested that the offenders committing burglaries in Christchurch are, to some extent, opportunistic by committing burglaries when there are greater opportunities, such as during the workweek. They may also be experienced, especially if they make the rational choice to burgle when the chance of being disturbed during the burglary is reduced.

The lack of significant seasonal trends for burglaries in Christchurch is not supported by national and international literature. For instance, in New Zealand, Field (1989) found that the majority of burglaries occurred during the holiday period (December to January). In America, the Netherlands, England and Wales studies also found seasonal trends. The majority of burglaries in the aforementioned countries occurred in the warmer months (Beki et al 1999, Jones 1996, Weisel 2002). As windows and doors are left open, there are increasing opportunities for offenders to find suitable points of entry. The lack of seasonal trends in Christchurch could, theoretically, be explained because if the offenders are experienced they may need to offend all year round to support themselves. It is approached in a similar way to a job by the offenders and they offend in order to improve their economic status. This argument is described in the structuralist approach (Rengert 1989, Marks 1991, Pacione 1997). However, a more likely explanation for the lack of seasonal trends could be because the offenders in Christchurch are less sensitive to the weather conditions than in other areas of the country and the world. This may be because the seasonal changes bring less extreme temperature conditions in Christchurch. The less extreme temperature conditions could also mean that victims do not drastically change their

behaviour seasonally, thus not changing the number of opportunities presented to the offenders across the seasons.

8.4.2: What is taken?

The types and value of items stolen in a burglary can provide insights into the motivations of the offender. For example, if expensive items are stolen, the reason for offending is probably greed. Conversely, if food is stolen, the motive is more likely to be self-preservation. Additionally, the more expensive the value of items stolen, the more likely it is the offender is experienced. The less valuable the items stolen, then the more likely it is that the burglary is opportunistic.

The results in Chapter Six illustrated that the most common items taken in burglaries were electronic and audio-visual equipment. The most common value of items stolen in burglaries was between \$1 and \$499. The properties in less deprived areas also had a higher percentage of more expensive items stolen than those in more deprived areas. However, this relationship was not significant.

The fact that electronic equipment was stolen in the majority of burglaries supports the concept that the increase in burglaries in the past 30 years is due to an improvement in technology (Brantingham and Brantingham 1984). For instance, technological developments in the last 30 years have meant items that are more valuable are more easily portable and more easily stolen, and because it is these items that are most commonly stolen this could support the concept that the increase in burglary rates is related to improvements in technology. The value of the items stolen can be related to the rational choice and the structuralist theories. The rational choice theory is important because it hypothesises that an offender considers the costs and benefits of offending at a particular residence. If the possible benefits, such as the value of the items that could be stolen are quite high they can out-weigh the costs of offending. Thus, the rational choice that is made can be related to the value of the goods able to be stolen in the burglary (Davidson 1980, Cater and Jones 1989, Rengert et al 1999, Hakim et al 2000, White and Haines 2001, Lu 2003). The value of the items stolen is also related to the structuralist theory. If items of

high value are stolen, the motivation behind the burglary may be to improve the offender's economic status. However, if the items are of low value, the motivation may be self-preservation or due to hostility towards people of higher economic status. This means that committing burglary is a form of demonstrating their frustration with society especially when they burgle people of higher socio-economic status (Knox and Pinch 2000, Hall 2001, White and Haines 2001). In Christchurch, because there are a variety of values of items stolen in burglaries, the offenders appear to be both opportunist and experienced offenders.

The relationship between the value of items stolen in burglaries in Christchurch and the level of deprivation of the area in which the burglaries took place was not significant. The reason the difference was not significant could be because of the large values of items stolen in a couple of the burglaries in the more deprived areas. It is possible that these amounts were so high due to false reporting of stolen items in order to make a higher claim on insurance. The false reporting was suggested because the amounts reported as stolen were in excess of the amount stolen in the least deprived areas, where items of greater value would be more available to steal. There is little previous research into the value and types of items stolen and the deprivation levels in burglaries, so very few comparisons can be made. The difference between the value of items stolen in higher and lower deprivation areas was supported by Davidson (1980) who also found that in less deprived areas the losses from burglaries are greater than in more deprived areas in Christchurch. However, he also found that these differences were not significant.

8.5: Characteristics of the Burglars

8.5.1: Demographic Characteristics

Research objective two was concerned with identifying characteristics of the burglars. The key themes in relation to a burglar's characteristics concern their age, gender and employment status. These characteristics are important as they can provide insights into the reasons for their offending.

As reported in Chapter Six the majority of offenders were European males aged between 15 and 19 years. The greatest percentages of offenders were also unemployed. The reason that there was such a drastic difference between the percentage of offenders aged 10-14 years and those aged 15-19 years was most likely because only the prosecuted offenders were studied. Prosecution of offenders usually occurs when they are aged 16 years and over, and the usual course of action taken against offenders aged less than 16 years is a family group conference, not prosecution, meaning that the majority of offenders under 16 years were not included.

The results in Chapter Six regarding the age and gender of offenders was similar to that reported in previous studies from New Zealand, Australia and England. Studies from these countries affirmed that the majority of offenders were young (15 to 25 year olds) and male (Davidson 1981, Field 1989, Feldman 1993, Chainey et al 2001, Ratcliffe 2001, Weisel 2002). The number of young offenders in the demographic characteristics of the offenders can be supported by many of the theoretical approaches outlined in Chapter Two. For instance, the sub-culture theory can also support the finding that many of the offenders are younger than 20 years old. The reason the theory can support the findings is because the theory suggests that large groups of young people often behave with a gang mentality, meaning that the interactions within and between groups of young people will encourage them to burgle (Cater and Jones 1989, Marks 1991, Knox and Pinch 2000).

The inheritance theory is also important, as in Christchurch there are whole families of offenders. In the inheritance theory, it is suggested that in some families children are brought up with different morals and beliefs to the remainder of the population. This theory also suggests that these beliefs may include one that committing burglaries is legitimate. The children may also be taught to commit burglaries at a young age (Cohen 1968, Miethe and Meier 1994, Johnston 1986, Pacione 1997). The humanist approach can also provide some insights. It theorises that it is people's experiences that shape their behaviour. Consequently, if a child experiences their parents committing burglaries, or is present while their parents are committing burglaries, it could be assumed under this theory that they would be more likely to commit burglaries themselves when they grow up (Johnston 1986).

This theory also supports the way in which whole families can be offenders in Christchurch.

Another important theory is the labelling theory. This theory hypothesises that if an individual commits a burglary and is labelled a burglar by society, that individual may then continue to offend as society already thinks they commit burglaries. They continue to offend because it may be easier to continue offending than disprove society's perception (Pearson 1994, White and Haines 2001). This theory is important in understanding career criminals and is also important in understanding why young people are such prolific offenders. Under this theory, the reasons for prolific young offenders could be because they often offend primarily when young and if they are caught and punished, they may continue to offend because that is how society believes they behave.

The disproportionate percentage of offenders who were unemployed confirms that this is an enduring feature of Christchurch burglars (Davidson 1980). Being unemployed was also common of offenders in many international studies (Wilson and Herrnstein 1985, Rengert 1989, Pacione 1997). The disproportionate percent of unemployed offenders is supported by the structuralist theory which considers unemployment a common characteristic of offenders. The reason is that when people are not earning money they may turn to illegal means such as burglary to make a living (Box 1981, Jackson and Smith 1984, Johnston 1986, Pacione 1997, Wright and Decker 1994). It has also been suggested by the structuralist approach that some offenders may leave their jobs in order to spend more time offending (Wilson and Herrnstein 1985, Rengert 1989, Beki et al 1999). If it is the case that offenders do in fact leave their jobs to have more time to offend this may be why there is a disproportionate amount of unemployed offenders.

8.5.2: How Far do Burglars Travel?

A vital area focussed on was the distance burglars travelled to commit an offence. The distance travelled by offenders to burgle was a relatively unexplored aspect of burglaries in Christchurch. The last research conducted on the distance to burgle was Davidson's (1980) study. Many key findings resulted from the analysis in this thesis. They relate to

correlations between the deprivation of the area in which the victims lived, the distance travelled by offenders and the relationship between the distance travelled by offenders and the factors that influence the distance.

In summary, the distance travelled by offenders increased over the three-year study period, and the distance also increased from that found in Davidson's (1980) study, illustrating a long-term increase. Overall, offenders travelled short distances to commit burglaries. The distances travelled by offenders to burgle were dependent on the deprivation of the area in which the victim lived. The less deprived the area, the longer the distance offenders travelled to burgle the victim. Offenders who were employed travelled further to burgle than other offenders, as did offenders aged between 20 and 29 years.

The average distance travelled by offenders was 4.4km for the entire study period. This illustrates an increase, although small, in the distance travelled to burgle over a 25 year period, as Davidson (1980) found that offenders travelled between three and four km to burgle. There are many possible reasons for the increase in the distance travelled. For example, offenders use practically any method of travel to reach burglaries. Bicycling, walking, driving or travelling in Christchurch buses were all very common methods of transport. The improvement of the Christchurch bus system may be a reason for the increase in the distances travelled. The increase may also be due to the age of the offenders, as when offender's age increases they have greater access to cars and driver licenses, and can thus travel further, with less effort. In addition, if the offender becomes more experienced, they are generally more likely to travel further for greater reward and could become more mobile. This theory could be supported by Davidson's (1980) findings that there was evidence that Christchurch offenders were organised and experienced, and that less experienced offenders travelled shorter distances. Additionally, this thesis found a positive relationship between number of offenders per burglary and the distance travelled to burgle. As the offenders who burgle in groups are more likely to be more organised (as they require organisation of all the parties involved), it could be argued that there may have been an increase in the percentage of offenders who are organised and who burgle in groups, which would mean an increase in the distance travelled.

In support of the above findings that offenders travel short distances to burgle, studies locally and internationally have also found that offenders travel minimal distances to burgle. Davidson (1980) found that Christchurch offenders travelled short distances to burgle. Offenders were also found to travel short distances to burgle by studies in Australia, England and America (Pyle 1974, Reppetto 1974, Rengert et al 1999, Wiles and Costello 2000, Ratcliffe 2003). The most relevant theory relating to the distance travelled to burgle is the routine activities theory. However, the short distances travelled to burgle in Christchurch can also be closely linked with the opportunity and routine activities theories. The routine activities theory is important as it assumes that an offender lives close to where they burgle because they encounter the houses in their daily activities (Rengert 1989, Seigel 1992, Fisher and Wilkes 2003, Lu 2003). The opportunity theory is also related to the distance travelled to burgle because the closer the offender lives to an address the more opportunity there is for the offender to see when the property becomes a suitable target, thus reducing the distance travelled (Gottfredson and Taylor 1986, Cater and Jones 1989, Hochstetler 2001, White and Haines 2001).

Very little research has been done with respect to the factors that influence the distance travelled to burgle. The correlation between the distance travelled by offenders to offend and the level of deprivation of the area in which the victim lived was the converse of that found by Davidson's (1980) study. He found that there was very little evidence that offenders travel to the less deprived areas to burgle. However, the link between deprivation and distance is supported by the rational choice theory, because the offender must have made a rational choice to travel longer distances, most likely to reach potentially more lucrative properties (Cater and Jones 1989, White and Haines 2001, Lu 2003). The offender appears to have made a rational choice in Christchurch because the offenders did travel further to reach targets that would potentially have had more valuable items to steal. The effects of the rational choice made to maximise the benefits causes the inverse correlation between the distance travelled to burgle and deprivation of the area in which the offender lived.

The way in which the distances travelled by offenders are influenced by the occupation of the offenders is a relatively unexplored factor. Offenders who were employed or sickness beneficiaries travelled further than those that were students or unemployed. The offenders who were employed possibly travelled further because they had a more extensive area in which they felt comfortable. Davidson (1980) also found that offenders who were employed travelled longer distances to burgle. The student offenders possibly travelled a shorter distance because their school was most likely to be close to their home, limiting the area in which they felt comfortable. Due to the lack of any previous research, there is no basis for further comparison. Chapter Six illustrated that the offenders who were aged 20-29 years travelled the furthest, which was supported by the findings of Chainey et al (2001) that, in England, younger offenders travel longer distances to burgle than older offenders.

8.6: Characteristics of Burgled Properties

The characteristics of the burgled properties can increase the risk of a burglary. The aim of research objective three was to identify the differences in the characteristics of burgled and non-burgled properties. The most noteworthy characteristics are discussed below. They relate to the presence of security alarms, hiding places, escape routes, street type and whether the property was in a Neighbourhood Watch area.

Security alarms are apparently a very effective means of reducing the risk of burglary. However, this study found that more burgled than non-burgled properties had security alarms. The reason that more burgled than non-burgled properties had security alarms could be due to the fitting of security alarms retrospectively after suggestions given out to victims by police with regards to target hardening in an attempt to reduce the incidence of repeat victimisation. Other studies have also found that security alarms are effective in deterring burglaries, although some burglars can disarm the alarms (Cromwell et al 1991). The presence of security alarms is related to the opportunity theory as, if the property is protected by a security alarm, it is similar to having a capable guardian there, which is a deterrent to offenders and if there is a capable guardian, under the opportunity theory a burglary will generally not occur (Cater and Jones 1989, Field 1989, Wright and Decker 1994, White and Haines 2001).

Any house with easy access is favoured by offenders in Christchurch. This opinion was substantiated by higher entry point visibility in more burgled than non-burgled properties. Interestingly, the non-deprived areas had properties with no entry points visible burgled; however, all of the burgled properties in deprived areas had visible entry points. The difference could imply that the offender was motivated to burgle the properties in non-deprived areas more because they may have had more expensive items to steal. This suggestion is related to the opportunity theory because, if the offender identified an opportunity to burgle the property, then it is most likely the appeal of the opportunity would be greatly enhanced if the offender had a view of the inside of the property or of entry points into the property in order to identify the ease of entry (Cater and Jones 1989, Field 1989, Wright and Decker 1994, White and Haines 2001).

Properties where offenders could not easily be seen from the street, such as back-sections, also have higher rates of burglaries. This opinion is supported by the findings of this thesis, as more of the non-burgled than burgled properties had no hiding places on their properties. There were a greater percentage of properties in deprived areas that had no hiding places than in non-deprived areas. The difference between the properties in different areas could mean that the properties in deprived areas were easier to enter, so the offender would have had less use for a hiding place. In studies, minimising the number of hiding places was found to reduce the likelihood of burglaries (Wekerle and Whitzman 1995, Doeksen et al 1996). Reducing the hiding places subsequently decreases the opportunities on the property for the offender to be unseen from the street, increasing the risk to the offender which interrelates to the rational choice theory, because if the benefits are low then the risks will also be low (Hakim et al 2000, White and Haines 2001, Lu 2003).

Additionally, any properties with easy escape routes are favoured by offenders because often when police arrive they release their dogs to chase the offenders. Accordingly, properties in close proximity to parks or open spaces have an increased risk of burglary (Coleman 1985, Doeksen 1997, Evans 1999, Hakim et al 2000). The proximity to parks and other specified land-use types was also considered in this study. Although many properties

in deprived and non-deprived areas were not close to the specified land-use types, the ones that were, were closest to parks, rivers and schools. In the deprived areas, the burgled properties were closest to parks, rivers and schools. The proximity to schools could mean that the children in the deprived areas were more likely to offend. In the non-deprived areas, the burgled properties were closest to parks. The consideration of ease of escape could relate to both the opportunity and rational choice theories. The opportunity theory would be important because, if there was an opportunity to escape easily after committing the burglary, the property is seen as a suitable target (Cater and Jones 1989, Field 1989, Wright and Decker 1994, White and Haines 2001). The rational choice is also important because, if the offender could escape easily afterwards, it would reduce the risks to the offender (Hakim et al 2000, White and Haines 2001, Lu 2003).

International studies have found that there was a correlation between the busyness of a victim's street and the likelihood of burglary; the busier the street is the more likely it is that properties along the street will be burgled. Conversely, properties along quiet streets are less likely to be burgled (Greenberg and Rohe 1984, Coleman 1985, Cromwell et al 1991, Doeksen 1997, Robinson 1997 Ham-Rowbottom et al 1999, Knowles 2003, Ratcliffe 2003). Riccarton Road, which is very busy, was one of the worst areas for burglary. The results presented in Chapter Seven illustrated that more of the properties burgled in non-deprived areas were on busy streets than in deprived areas, and more of the burgled properties in deprived areas were on quiet streets than in non-deprived areas. The differences could be because offenders acquired a greater sense of anonymity in non-deprived areas resulting in their committing more burglaries along busy streets. However, they may have felt that they looked as though they fitted in, in the non-deprived areas, which is why they chose quiet streets.

It has been suggested that Neighbourhood Watch groups are very effective in reducing burglaries (Doeksen 1997, Bennet 1989, Goodwin 2002). In this study, less than 25% of burgled properties were in areas with Neighbourhood Watch signs present. However, there were more properties in deprived areas than in the non-deprived areas that were in Neighbourhood Watch areas.

8.7: Conclusions

This chapter reviewed each of the three research objectives, related the findings to those of other studies and substantiated these findings with the criminological theories. The burglary rate in Christchurch is positively related to deprivation and is concentrated mainly in central city areas, affirming previous research. The clear-up rate trends show an overall increase and are negatively related to deprivation, contrary to other research. Most burglaries occurred during the working week, a finding which was supported internationally. The value of items stolen was negatively related to the deprivation level of the area in which the victims lived; although this relationship was not significant it was supported locally by previous research. The characteristics of the offender were fairly universal. Offenders were young European males who were unemployed and travelled short distances to burgle, which was also supported by both local and international studies. The distance increased over the three-year study period. With regard to the characteristics of the burgled properties, there were some commonalities with international studies regarding their environmental characteristics. However, there were anomalies especially regarding the target hardening features of the burgled properties. The main conclusions from this discussion will also be reiterated in Chapter Nine, where possibilities for future research will be suggested.

Chapter Nine: Conclusions

9.1: Introduction

Residential burglary is a significant problem in many urban areas, and Christchurch is no exception. This thesis analysed and discussed the extent of the problem and how it has changed spatially and temporally. The results of the analysis of the residential burglary problem in Christchurch were compared with previous local, national and international studies. This thesis was focussed around three research objectives. The first research objective was to identify ecological trends in the spatial and temporal distribution of residential burglary and clear-up rates in Christchurch for the years 1998/1999 to 2002/2003. The focus of the second research objective was to analyse the spatial and temporal distribution of burglars and the distances they travelled to burgle for the period 2001 to 2003. The third research objective was to evaluate the features of burgled and non-burgled properties. This chapter will present a summary of the key findings of this thesis with regard to each of the research objectives. It will also outline how GIS has helped in the analysis conducted in this thesis, and the policy implications of this. Possibilities for future research will also be presented. The thesis will be concluded with some final comments.

9.2: Summary of Key Findings

The key findings of this thesis relate to each of the three research objectives. These findings can be defined by the following headings: geography of burglary, geography of clear-up rates, characteristics of burglaries, characteristics of burglars, the distances they travel to burgle, and characteristics of burgled properties.

The key findings on the geography of burglary achieve research objective one. This study found that high burglary rates were situated in the inner city and in the more deprived areas of Christchurch. The relationship between deprivation and burglary rates was significant. This distribution was also found by previous studies in Christchurch, consequently this distribution has remained relatively constant over a 25-year period. International studies also found that inner city and deprived areas had high burglary rates. This spatial distribution was supported by the anomie and social disorganisation theories. That is because, under these theories, inner city areas can be termed zones in transition, which have

highly transient populations. The highly transient nature of these populations can lead to a lack of social control, which in turn increases burglary rates.

The discussion of the geography of clear-up rates also achieved research objective one. The lowest clear-up rates were situated in inner city areas. The highest clear-up rates were located in south-east and north-west areas of the city. The highest clear-up rates occurred in the less deprived areas; however, this relationship was not significant. This finding was consistent with previous local studies. There were no comparisons made between this study and international studies as very few actually examined the relationships between clear-up rates and deprivation.

The key results that relate to the characteristics of burglaries such as the temporal dimension of burglaries are related to research objective one. Overall, residential burglary rates decreased over the five-year study period, which was consistent with international research. The most common time for burglaries to occur was during the daytime, specifically the afternoon on weekdays. This temporal pattern was also consistent with international research. During these times, the majority of people would be at work leaving the house unoccupied. When a house is unoccupied, there is often not a capable guardian to protect the property, which the opportunity theory considers one of the main factors increasing the risk of burglary. There were no seasonal trends present in the distribution of burglaries for Christchurch. However, international studies found that the majority of burglaries occurred in summer. The reason that there were no seasonal trends present could be that the weather is not as extreme in Christchurch as it is in other countries, which could cause less seasonal differences in offender's behaviour.

The types and values of items stolen in burglaries are included in the key findings of the characteristics of burglaries. The most common items stolen in burglaries were electronic or audio-visual equipment. In the majority of burglaries between \$1 and \$499 was stolen. A larger percent of victims in less deprived areas had expensive items stolen than the victims in more deprived areas. However, there was no relationship found between value of goods stolen in a burglary and deprivation, which was consistent with previous local research.

The key findings concerning the characteristics of offenders achieve to the first part of research objective two. The highest percent of Christchurch offenders were unemployed European males aged between 15 and 19 years. These characteristics were consistent with international research. Spatially, the results illustrated that the more deprived an area was, then the higher the percentage of offenders. The high percentage of young offenders was supported by the sub-cultures theory, specifically youth sub-cultures. That is because young people in large groups can act with a gang mentality. For instance, they could goad each other into committing burglaries. The high rate of unemployment among offenders was supported by the structuralist theory, because unemployed individuals may offend to express their dissatisfaction for the inequality rife in capitalist society. Additionally, unemployed individuals would presumably need the money in order to attempt to obtain economic equality with employed individuals.

The second part of research objective two was achieved by examining the key findings regarding the distances travelled by offenders to burgle. Offenders in Christchurch travelled short distances to offend, on average less than 5km. This finding was consistent with local and international studies. There has been very little previous international and local analysis of how the distances travelled to burgle changed with differing offender characteristics. This thesis did examine how those factors influenced the distance to burgle. For instance, offenders aged 20 to 29 years travelled the furthest, as did offenders who were male, employed and experienced. In addition, offenders travelled the furthest to burgle victims who lived in less deprived areas. The rational choice theory is important when considering the distances travelled because offenders will make rational choice before offending, weighing up the costs and benefits. Thus, offenders may travel further to burgle a target with more benefits such as houses with higher values of items to steal, for instance, properties in less deprived areas. The routine activities theory was significant because offenders commit burglaries in areas where they feel most comfortable. For example, offenders commit burglaries within a short distance from their home because they are more likely to be exposed to those properties during their daily routine.

The key findings concerning the characteristics of burgled properties achieved research objective three. In Christchurch, very few of the surveyed properties had security alarms, however, more of the burgled than non-burgled properties had security alarms. The reason for this difference is because the burgled properties most probably had the security alarms fitted after being burgled. Additionally, a larger percentage of the properties in deprived than non-deprived areas had security alarms. Security alarms are a very effective method of reducing burglaries, although some offenders can disarm them. A greater percentage of the burgled than non-burgled properties had entry points to the houses visible. This difference could be because offenders favour properties with easy entry, thus minimising the costs to the offender, which is related to rational choice theory. Ease of escape is also important to offenders, properties near parks or schools were commonly burgled. In addition, the busyness of the street that the property is located on had an affect on the likelihood of being burgled, busy streets provided offenders with a greater sense of anonymity increasing risks of burglary. Thus, a larger percentage of burgled properties in non-deprived areas were located on busy streets.

9.3: GIS and Burglary

The utilisation of GIS in the analysis of the spatial and temporal trends for many aspects of burglaries has proven to be very valuable. It allowed different aspects of burglaries to be analysed with ease. The academic literature that has used GIS techniques to spatially analyse burglaries has been minimal. This thesis has contributed to the literature on burglaries and has proven how useful GIS is analysing them.

This thesis used GIS to spatially analyse the temporal changes in the distribution of burglary and clear-up rates. The distribution of offenders across the city was also analysed temporally using GIS. This distributions of offenders, burglaries and clear-up were correlated to the levels of deprivation of the areas in which they occurred, which was made effortless with the use of GIS. Additionally, GIS was found to be invaluable when calculating the distance travelled to burgle. For example, the distances travelled to burgle by 857 offenders were calculated accurately in a short period of time using GIS. Thus, GIS

has proven to be an extremely valuable tool in the spatial and temporal analysis of burglaries.

Many police departments already use GIS, to some extent, to analyse burglaries and attempt to reduce their occurrence. However, the use of GIS by the police could be extended. For instance, GIS could also be used to plot each offender's address, and attach to that point information, such as their name, age gender, ethnicity, Modus Operandi (MO) or their fingerprint. Each of the burglary victims could also be plotted, with respect to each offender. This would aid in the identification of spatial patterns of the distances and directions offenders travel to commit burglary, which would also assist in profiling the offender. Additionally the GIS files would be more easily accessible to all of the Police Stations in a city or country.

9.4: Future Research

As burglary is such a vast subject, there are still many aspects of burglaries that remain unexplored, especially in Christchurch. Some of the more fascinating aspects that are still to be explored will be outlined in the following paragraphs.

Conducting interviews with convicted burglars would be of great interest, because the interview process could provide insights into the offender's behaviour. It would also aid in providing explanations for the reasons offenders chose to burgle certain properties and why they burgled at certain times. The interviews with convicted burglars may also provide information regarding which methods are the most successful at deterring them from committing burglaries. It would also be interesting to gain insights, from the offender's point of view, into their reasons for repeatedly victimising houses and people. In addition to interviewing the offender, it would be of use to interview the victim. The interviews with the victims would be of interest especially if the fear of burglary that victims experience was quantified in some way and was then compared to fear of burglary that non-victims experience. Insurance companies could also be interviewed to identify which areas of Christchurch they consider higher risk than others for burglaries and how they come to

those conclusions. Additionally, it would be valuable to check whether the areas that the insurance companies correlate with the highest rates of burglary as recorded by the police.

The in-depth study of repeat offenders would be valuable as it would provide greater insights into the extent to which repeat offending occurs. It would also be useful to identify whether any areas are more adversely affected than others by repeat offenders. In addition, the items taken by repeat offenders could be compared with the items stolen by offenders who only commit one burglary. Identifying the temporal pattern of repeat offending would also be informative.

Further examination into the ways in which weather conditions affect burglaries would be informative. For example, it may be that if it is warm the risk of burglary higher is than if it is raining or cold. This analysis would be most useful if the number burglaries per day was compared to the weather conditions on that day. It would also be very useful to compare and contrast the results that were presented in this thesis for Christchurch, with results that could be calculated for other cities in New Zealand to identify whether the trends are local or national. Additionally, as this research only focused on a five-year period, it would be valuable to research long-term trends. Another aspect that could be explored would be to create an ‘opportunity surface’ of burglary risk in Christchurch using ArcGIS. Then project the risks for a one-year period and compare those locations with high predicted risk values to the locations of actual burglaries for that year to identify how predictable offender’s behaviour is.

9.5: Concluding Remarks

In achieving the three research objectives, many aspects of residential burglary in Christchurch were explored. The decrease in burglary rates corresponded with international studies as was the fluctuation between the years. The spatial pattern of burglaries in Christchurch was consistent over a 25-year period, with the highest rates of burglaries occurring in deprived areas and especially in the inner city and eastern suburbs. Conversely, the clear-up rates increased which was contrary to the findings of previous research conducted for Christchurch and internationally. However, the characteristics of

offenders were universal. The distances travelled by offenders were also found to be relatively universal. Given that many of the characteristics of offenders which influenced the distances travelled had not been previously examined, the results were unable to be compared to previous research. This thesis has analysed and discussed the spatial and temporal distribution of the many aspects of residential burglaries in Christchurch which could be useful data for house buyers in order to identify safe areas. It could also be useful for the police in analysing the spatial and temporal burglary problem in Christchurch, or for Insurance companies to do the same. The information provided in this thesis could also be used further in sociological or psychological analysis into offender's behaviour. In addition, this thesis updates the academic literature on residential burglaries in Christchurch.

Appendix

Appendix One: Survey of Targets

ID:						
Address:						
Date:						
Time:						
	cul-de-sac	Main thoroughfare	Buy Street	Quiet Street		
Street Type						
presence of graffiti along street						
street lighting						
Neighbourhood watch signs present						
Position of house along Street						
	Residential	Commercial	Industrial	Rural		
General area type						
	back section	Flats	position in flats	standalone	state house	Semi-detached
type of dwelling						
	walls/fences	Garages	trees	shrubs		
hiding spaces						
	windows	Doors				
shrubby surrounding						
	knee	Waist	shoulders	over head	Gated	
Height of Fence:						
	Solid	Bars	Picket Type	Shrubby	Wood	Concrete
Fence Type						
	park	School	retail	railway lines	motels/hotels	Other
Proximity to						
	Windows	Doors	Garage			
entry point visible from street						
	small	Medium	Large			
size of visible windows						
	very well kept	well kept	Average	not well kept	very rundown	
overall appearance of property						

security lights	
distance of house from road	
Dogs	
Alarm sign or Box	
house overlooked by neighbours	
how visible is inside home from street (0-10)	
alleyway between houses	
how broken into	
comments	

References

- Allen, R. C. (1996). Socioeconomic Conditions and Property Crime: A Comprehensive Review and Test of the Professional Literature. *American Journal of Economics and Sociology*, 55(3), 293-308.
- Ayer, A. J. (1968). *The Origins of Pragmatism*. London: Macmillan.
- Beki, C., Zeelenberg, K., & VanMontfort, K. (1999). An Analysis of the Crime Rate in the Netherlands 1950-93. *British Journal Criminology*, 39(3), 401-415.
- Bellair, P. E. (1997). Social Interaction and Community Crime: Examining the Importance of Neighbor Networks. *Criminology*, 35(4), 677-699.
- Bennett, T. (1989). Burglars' Choice of Targets. In D. E. D. Herbert (Ed.), *The Geography of Crime* (pp. 176-192). London: Routledge.
- Bottomley, K., & Coleman, C. (1981). *Understanding Crime Rates*. England: Gower Publishing Company Ltd.
- Bottoms, A. E., & Wiles, P. (1992). Explanations of Crime and Place. In D. J. Evans, N. R. Fyfe & D. J. Herbert (Eds.), *Crime, Policing and Place: Essays in Environmental Criminology* (pp. 11-35). London: Routledge.
- Bounds, M. (2004). *Urban Social Theory: City, Self and Society*. Melbourne: Oxford University Press.
- Bowers, K. J. (1998). Victimisation Revisited: A Case Study of Non-Residential Repeat Burglary on Merseyside. *British Journal Criminology*, 38(3), 429-452.
- Box, S. (1981). *Deviance Reality and Society* (2 ed.). Suffolk: The Chaucer Press.
- Brantingham, P., & Brantingham, P. (1984). *Patterns in Crime*. New York: Macmillan Publishing Company.

- Brunet, J. R. (2002). Discouragement of Crime Through Civil Remedies: An Application of a Reformulated Routine Activities Theory. *Western Criminology Review*, 4(1), 68-79.
- Buchanan, C., & Hartley, P. R. (1996). *Controlling Crime in New Zealand*. Wellington: New Zealand Business Roundtable.
- Burrows, J., & Tarling, R. (1987). The Investigation of Crime in England and Wales. *The British Journal of Criminology*, 27(3), 229-251.
- Casey, C., PaulRaj, B., Jacka, S., & Segressenmann, T. (2004). *Evaluation of the Target Hardening Pilot Programme*. Wellington: Ministry of Justice.
- Cater, J., & Jones, T. (1989). *Social Geography: An Introduction to Contemporary Issues*. London: Hodder and Stoughton.
- Chainey, S., Austin, B., & Holland, F. (2001). *Insights into the Analysis of Offender Journeys to Crime*. London: InfoTech Enterprises Europe.
- Cohen, P. S. (1968). *Modern Social Theory*. London: Heinemann Educational Books Ltd.
- Coleman, A. (1985). *Utopia on Trial*. London: Hilary Shipman Ltd.
- Crime Prevention Unit. (2003). *Community Youth Projects*. Wellington: New Zealand Courts.
- Crime Reduction UK. (2003). *Repeat Victimisation Domestic Burglary Project*. Retrieved 7/04/04, 2004, from www.crimereduction.gov.uk/burglary67.htm
- Cromwell, P. F., Olson, J. N., & Avary, D. W. (Eds.). (1991). *Breaking and Entering: An Ethnographic Analysis of Burglary*. California: Sage Publications.
- Curtin, L., Tilley, N., Owen, M., & Pease, K. (2001). *Developing Crime Reduction Plans: Some Examples from the Reducing Burglary Initiative*. London.
- David, P. R. (Ed.). (1974). *The World of the Burglar: Five Criminal Lives*. Albuquerque: University of New Mexico Press.

- Davidson, R. N. (1979, January 1979). *Crime and the Community: A Geographer's Perspective*. Paper presented at the Tenth New Zealand Geography Conference and Forty-Ninth ANZAAS Congress (Geographical Sciences), Auckland.
- Davidson, R. N. (1980). Patterns of Residential Burglary in Christchurch. *New Zealand Geographer*, 36(2), 73-78.
- Davidson, R. N. (1981). *Crime and the Environment*. London: Croom Helm Ltd.
- DeFronzo, J. (1996). AFDC, a City's Racial and Ethnic Composition, and Burglary. *Social Service Review*, September 1996, 464-471.
- Department for Work and Pensions. (2004). *Opportunity For All: Indicators of Progress: Communities*. UK.
- Department of the Prime Minister and Cabinet. (1994). *The New Zealand Crime Prevention Strategy*. Wellington: Department of the Prime Minister and Cabinet, Parliament Buildings, Wellington New Zealand Crime Prevention Unit.
- Doeksen, H. (1997). Reducing Crime and the Fear of Crime by Reclaiming New Zealand's Suburban Street. *Landscape and Urban Planning*, 39, 243-252.
- Doeksen, H., Doyle, J., Duffell, S., & MacLauchlan, J. (1996). *The Garden City a Safe City: Reducing Crime Through Environmental Planning and Design* (2 ed.). Christchurch: Christchurch Safer Community Council.
- Ekbolm, P., Law, H., & Sutton, M. (1996). *Domestic Burglary Schemes in the Safer Cities Programme* (No. 42).
- Engel, U., & Hurrelman, K. (1988). Delinquent Behavior in Adolescence: Potential and Constraints of Preventative Strategies in School Settings. In P.-A. Albrecht & O. Backes (Eds.), *Crime Prevention and Intervention: Legal and Ethical Problems*. Berlin: De Gruyter and Co.

Evans, D. J. (1989). Geographical Analyses of Residential Burglary. In D. J. Evans & D. J. Herbert (Eds.), *The Geography of Crime* (pp. 86-107). London: Routledge.

Evans, D. J. (1999). *Crime Policing: Spatial Approaches*. England: Ashgate Publishing Ltd.

Farrell, G., Phillips, C., & Pease, K. (1995). Like Taking Candy: Why Does Repeat Victimization Occur? *British Journal Criminology*, 35(3), 384-399.

Farrington, D. P., & Welsh, B. C. (2003). Family-Based Prevention of Offending A Meta-Analysis. *The Australian and New Zealand Journal of Criminology*, 36(2), 127-151.

Feldman, M. P. (1993). *The Psychology of Crime: a social sciences textbook*. Cambridge: University of Cambridge.

Field, M. (1989). *How to Beat the Burglar: A New Zealand home security guide*. New Zealand: Collins.

Fisher, B. S., & Wilkes, A. R. P. (2003). A Tale of Two Ivory Towers: A Comparative Analysis of Victimisation Rates and Risks between University Students in the United States and England. *British Journal Criminology*, 43, 526-545.

Freeman, R. B. (1983). Crime and Unemployment. In J. Q. Wilson (Ed.), *Crime and Public Policy*. San Francisco: Institute of Contemporary Issues.

Golledge, R. G. (1979). *Behavioural Problems in Urban Environments*. Paper presented at the New Zealand Geography Conference, Auckland.

Goodwin, V. (2002, 12-13 September). *Burglary and Repeat Victimisation in Tasmania*. Paper presented at the Crime Prevention Conference, Sydney.

Gottfredson, S. D., & Taylor, R. B. (1986). Person-Environment Interactions in the Prediction of Recidivism. In J. M. Byrne & R. J. Sampson (Eds.), *The Social Ecology of Crime* (pp. 133-155). New York: Springer-Verlag.

- Graycar, A. (1999, 20 October 1999). *Crime and Social Capital*. Paper presented at the 19th Biennial International Conference on Preventing Crime, Melbourne.
- Greenberg, S. W., & Rohe, W. M. (1984). Neighborhood Design and Crime. *APA Journal, Winter 1984*, 48-61.
- Grene, M. (1959). *Introduction to Existentialism*. Chicago: University of Chicago Press.
- Hagan, F. E. (1994). *Introduction to Criminology: theories, methods, and criminal behavior* (3 ed.). Chicago: Nelson and Hall Inc.
- Hakim, S., Rengert, G. F., & Shachamurove, Y. (2000). *Knowing Your Odds: Home Burglary and the Odds Ratio*. New York and Pennsylvania.
- Hall, T. (2001). *Urban Geography* (2 ed.). New York: Routledge.
- Ham-Rowbottom, K. A., Gifford, R., & Shaw, K. T. (1999). Defensible Space Theory and the Police: Assessing the Vulnerability of Residences to Burglary. *Journal of Environmental Psychology, 19*, 117-129.
- Harries, R. (2003). Modelling and Predicting Recorded Property Crime Trends in England and Wales-a retrospective. *International Journal of Forecasting, 19*, 557-566.
- Herbert, D. (1982). *The Geography of Urban Crime*. Essex: Longman Group Ltd.
- Hirschfield, A., & Bowers, K. J. (1997). The Effect of Social Cohesion on Levels of Recorded Crime in Disadvantaged Areas. *Urban Studies, 34*(8), 1275-1295.
- Hochstetler, A. (2001). Opportunities and Decisions: Interactional Dynamics in Robbery and Burglary Groups. *Criminology, 39*(3), 737-763.
- Home Office. (2004). *Domestic Burglary*. Retrieved 23/01/04, 2004, from www.crimereduction.gov.uk/toolkits/db020207.htm
- Hughes, G. (1998). *Understanding Crime Prevention: Social Control, Risk and Modernity*. Buckingham: Open University Press.

- Jackson, P., & Smith, S. J. (1984). *Exploring Social Geography*. London: George Allen and Unwin Ltd.
- Johnson, S. D., Bowers, K., & Hirschfield, A. (1997). New Insights into the Spatial and Temporal Distribution of Repeat Victimization. *British Journal Criminology*, 37(2), 224-241.
- Johnston, L. (2001). Crime, Fear and Civil Policing. *Urban Studies*, 38(5-6), 959-976.
- Johnston, R. J. (1986). *Philosophy and Human Geography: An Introduction to Contemporary Approaches* (2 ed.). Baltimore: Edward Arnold.
- Johnston, R. J., Gregory, D., & Smith, D. M. (Eds.). (1994). *The Dictionary of Human Geography* (3 ed.). Oxford: Blackwell Publishers.
- Jones, D. J. V. (1996). *Crime and Policing in the Twentieth Century*. Cardiff: University of Wales Press.
- Kitchin, R., & Tate, N. J. (2000). *Conducting Research into Human Geography: Theory, Methodology and Practice*. Essex: Pearson Education Ltd.
- Knowles, P. (2003). *Designing Out Crime: Defensible Space and the Distribution of Crime and Disorder in Residential Areas*. Retrieved 16/01/04, 2004, from www.operationscorpion.org.uk/design_out_crime/defensible_space.htm
- Knox, P., & Pinch, S. (2000). *Urban Social Geography* (4 ed.). London: Pearson Education Ltd.
- Lambert, J. R. (1970). *Crime, Police and Race Relations*. London: Oxford University Press.
- Lindstrom, M., Merlo, J., & Ostergren, P.-O. (2003). Social Capital and Sense of Insecurity in the Neighbourhood: a Population-Based Multilevel Analysis in Malmo, Sweden. *Social Science & Medicine*, 56, 1111-1120.

- Lu, Y. (2003). Getting Away with the Stolen Vehicle: An Investigation of Journey-after-Crime. *The Professional Geographer*, 55(4), 422-433.
- Marks, C. (1991). The Urban Underclass. *Annual Review of Sociology*, 17, 445-466.
- Miethe, T. D., & Meier, R. F. (1994). *Crime and its Social Context: Toward and integrated theory of offenders, victims, and situations*. Albany: State University of New York Press.
- Morris, A., & Reilly, J. (2003). Residential Burglary. In M. o. Justice (Ed.), *New Zealand National Survey of Crime Victims 2001* (pp. Chapter 7). Wellington: Ministry of Justice.
- Murray, A. T., McGuffog, I., Western, J. S., & Mullins, P. (2001). Exploratory Spatial Analysis Techniques for Examining Urban Crime. *British Journal Criminology*, 41, 309-329.
- New Zealand Police. (1994). *The New Zealand Police Corporate Plan 1993-1994*. Wellington: New Zealand Police.
- New Zealand Police. (2004). *Canterbury News*. Wellington: New Zealand Police.
- Newman, O. (1973). *Defensible Space : people and design in the violent city*. London: Architectural Press.
- Pacione, M. (1997). Urban Restructuring and the reproduction of Inequality in Britain's Cities: An Overview. In M. Pacione (Ed.), *Britain's Cities: Geographies of division in urban Britain*. London: Routledge.
- Pain, R. (2000). Place, Social Relations and the Fear of Crime: a Review. *Progress in Human Geography*, 24(3), 365-387.
- Parker, S. (2004). *Urban Theory and the Urban Experience: Encountering the City*. London: Routledge.

- Pearson, G. (1994). Youth, Crime and Society. In M. Maguire, R. Morgan & R. Reiner (Eds.), *The Oxford Handbook of Criminology* (pp. 1161-1196). New York: Clarendon Oxford Press.
- Pease, K. (1994). Crime Prevention. In M. Maguire, R. Morgan & R. Reiner (Eds.), *The Oxford Book of Criminology* (3 ed., pp. 659-703). Oxford: Clarendon Press.
- Phillips, T., & Walker, J. (1997). State Differences in Burglary Victimization in Australia: a research note. *ANZJS*, 33(1), 91-100.
- Police Commissioner. (2004). *Canterbury District Crime Statistics 2003/2004: A Summary of Recorded and Resolved Offence Statistics*: New Zealand Police Department.
- Polvi, N., Looman, T., Humphries, c., & Pease, K. (1991). The Time Course of Repeat Burglary Victimization. *British Journal Criminology*, 31(4), 411-414.
- Prosser, S. (1996). *An Evaluation of the Burglary Response Unit*. University of Canterbury, Christchurch.
- Pyle, G. F. (1974). *The Spatial Dynamics of Crime*. Chicago: University of Chicago, Department of Geography.
- Ratcliffe, J. (2001). *Residential Burglars and Urban Barriers: A Quantitative Spatial Study of the Impact of Canberra's Unique Geography on Residential Burglary Offenders* (No. CRC 17/00-01): Criminology Research Council Grant.
- Ratcliffe, J. (2001b). Policing Urban Geography. *Trends and Issues in crime and criminal justice*, 213, 1-6.
- Ratcliffe, J. (2003). Suburb Boundaries and Residential Burglars. *Trends and Issues in crime and criminal justice*, 246, 1-6.
- Rengert, G. F. (1989). Behavioural Geography and Criminal Behaviour. In D. J. Evans & D. J. Herbert (Eds.), *The Geography of Crime* (pp. 161-175). London: Routledge.

- Rengert, G. F., Piquero, A. R., & Jones, P. R. (1999). Distance Decay Reexamined. *Criminology*, 37(2), 427-446.
- Rengert, G. F., & Wasilchick, J. (1985). *Suburban Burglary: A Time and a Place for Everything*. Illinois: Charles C Thomas.
- Reppetto, T. A. (1974). *Residential Crime*. Cambridge, MA: Ballinger.
- Robinson, M. B. (1997). Environmental Characteristics Associated with Residential Burglaries of Student Apartment Complexes. *Environmental Behavior*, 29(5), 657(619).
- Romer, D., Hall Jameson, K., & Aday, S. (2003). Television News and the Cultivation of Fear of Crime. *Journal of Communication*, March 2003, 88-104.
- Rountree, P. W., & Land, K. C. (1996). Perceived Risk versus Fear of Crime Empirical Evidence of Conceptually Distinct Reactions in Survey Data. *Social Forces*, 74(4), 1353-1376.
- Saegert, S., Winkel, G., & Swartz, C. (2002). Social Capital and Crime in New York City's Low-Income Housing. *Housing Policy Debate*, 13(1), 189-224.
- Savage, M., & Warde, A. (1993). *Urban Sociology, Capitalism and Modernity*. New York: Continuum.
- Shaw, M., & Pease, K. (2000). *Research on Repeat Victimisation in Scotland: a final report*. Scotland: Applied Criminology Group University of Huddersfield.
- Sherman, J. Q. (1983). Patrol Strategies for Police. In J. Q. Wilson (Ed.), *Crime and Public Policy*. San Francisco: Institute of Contemporary Issues.
- Siegel, L. J. (1992). *Criminology: theories, patterns, and typologies*. St Paul: West Publishing Company.
- Spielberg, H. (1975). *Doing Phenomenology*. The Hague: Martinus Nijoff.

Statistics New Zealand. (1996). *New Zealand Now: Crime*. Wellington: Statistics New Zealand.

Statistics New Zealand. (2003). *Crime in New Zealand*. Wellington: Statistics New Zealand.

Townsley, M., Homel, R., & Chaseling, J. (2003). Infectious Burglaries: A Test of the Near Repeat Hypothesis. *British Journal Criminology*, 43(3), 615-633.

Velasco, M., & Boba, R. (2000). Tactical Crime Analysis and Geographic Information Systems: Concepts and Examples. *Crime Mapping News*, 2, 1-4.

Weisel, D. L. (2002). *Burglary of Single-Family Houses* (No. 18). Washington DC.

Wekerle, G. R., & Whitzman, C. (1995). *Safe Cities: Guidelines for Planning, Design, and Management*. New York: Van Nostrand Reinhold.

White, R., & Haines, F. (2001). *Crime and Criminology: An Introduction* (2 ed.). South Melbourne: Oxford University Press.

Wiles, P., & Costello, A. (2000). *The 'road to nowhere': the evidence for travelling criminals*. London: Home Office.

Wilson, J. Q., & Herrnstein, R. J. (1985). *Crime and Human Nature*. New York: Simon And Schuster.

Wirth, L. (1940). Ideological Aspects of Social Disorganization. *American Sociological Review*, August, 472-482.

Wirth, L. (1944). Life in the City. In L. Carnovsky (Ed.), *The Library in the Community*. Chicago: University of Chicago Press.

Wright, R. T., & Decker, S. (1994). *Burglars on the Job: Streetlife and Residential Break-Ins*. Boston: North Eastern University Press.

Youth Justice Trust. (2003). The Health of Children and Young People who are Involved with the Greater Manchester Youth Offending Teams (YOTs). *Just Briefs: a briefing paper from the Youth Justice Trust, December 2003*, 1-6.

Zedner, L. (1994). Victims. In M. Maguire, R. Morgan & R. Reiner (Eds.), *The Oxford Handbook of Criminology*. New York: Clarendon Press.